AN ABSTRACT OF THE THESIS OF

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Title: The Accuracy of Parents' Perceptions of Their Preschool Children's Gross Motor Abilities.

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The purpose of this research was to determine the extent to which parents and professionals were in agreement prior to and following intervention regarding their judgement of the gross motor abilities of the parents' preschool children.

Each child was tested by a professional on the Ulrich Test of Gross Motor Development (1985). Dependent measures were parents' perceptions (N = 28 pairs) of their children's gross motor abilities. Parents were randomly assigned to either an intervention (treatment) or non-intervention (control) group. The intervention period included two-ninety minute videotaped observational training sessions, on how to observe gross motor patterns in a young child, over a two-week period. At the conclusion of the intervention period, all parents completed a questionnaire similar to one completed prior to intervention. Both questionnaires provided information on parents' perceptions of their children's gross motor abilities.

Paired-t tests were used to determine if significant differences existed between parents and professionals prior to intervention. Paired-t tests were also used following observational training

intervention to analyze any changes over time between the pre-intervention and post-intervention periods for intervention and non-intervention parents. Student-t tests were used to compare post-intervention differences between intervention parents and non-intervention parents. An alpha level of .10 was used in this study.

The results of the study revealed a significant difference between parents' perceptions and professional assessments. Most parents tended to overestimate their children's gross motor abilities relative to the professional standard. Significant differences were reported for changes occuring over time between the pre-intervention and post-intervention periods.

Significant differences also were found between groups following intervention. Parents receiving observational training demonstrated more realistic perceptions of their children's gross motor abilties relative to profesional assessments than did parents not receiving observational training.

As a result of these investigations, it was determined that parents and professionals were generally not in agreement with respect to children's current level of functioning in gross motor abilities. Parents, as previous literature has described, also tended to overestimate their children's abilities. Furthermore, the introduction of an intervention program, which trained parents to become better evaluators of motor ability, resulted in positively influencing parents' perceptions of their children's gross motor abilities.

THE ACCURACY of PARENTS' PERCEPTIONS of THEIR PRESCHOOL CHILDREN'S GROSS MOTOR ABILITIES

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DEDICATION

In memory of my beloved mother, Ruth, I dedicate this research thesis. Her death has left a tremendous void in my life. Her spirit, though, will remain always with me, as she has, these past couple years. So, too, will remain thoughts, of all the goodness she shared with so many others during her life.

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CHAPTER 1

INTRODUCTION

The observation of children focuses on determining the developmental level of the individual child as well as documenting child progress. Adults must be adept at observing children along with developing and describing a clear and concise picture of the behaviors exhibited during the observation. Adults should be aware that: 1) an individual's values may blur the observational image, 2) interpretation enters into the objectivity of observations and 3) the choice of which observations are worth noting is a bias in and of itself. With these cautions in mind, adults can proceed from observations to planning follow-through experiences (Cassidy, Myers & Benton, 1987).

Honig (1979) advises that professionals need to respect the parent as a prime source and observer of child characteristics that can give clues for appropriate remediation efforts. Green (1988) has further suggested the use of several sources of information, including parents, to facilitate the task of identifying young children who are at risk. Parents are a primary source of information. But, are parents able to give accurate information about their child?

The accuracy of information gained from parents has been the focus of numerous studies (Blacher-Dixon & Simeonssen, 1981; Gleason, 1977; Gradel, 1981; Sexton, Miller & Murdock, 1984; Handen, 1986). Designs used to address this issue have utilized

parental questionnaires as predictors of the child's performance, or have investigated parental accuracy by having parents predict their child's response for specific items. In the latter, the parents' responses were then matched with the child's response for each item.

Generally, parent reports of child capabilities are often considered inaccurate. Their accuracy depends on many factors, including clarity of the skills, how the question was asked, and the type of instrument used to identify parents' accuracy as well as the type of tool used to assess children's abilities. Blacher-Dixon and Simeonssen (1981) stress that many parents, in fact, systematically overestimate children's capabilities, as compared to professionals. The authors asserted that this phenomenon of "overestimation" may be largely due to limitations of the measures used and of questions asked when collecting parental judgements rather than to actual bias.

Powell (1981), however, suggested that parental observations of the developmental course of their children are more accurate than often assumed. This position is supported by researchers who report no significant overestimation on the part of parents (Donnelly, 1982; Sexton, Kelley, & Scott, 1982).

Sexton, Miller & Murdock (1984) point out that professionals involved in assessment procedures should not automatically exclude parental data with the generalization that it is inaccurate. They suggest that, in practice, all parents, regardless of their predicted or actual congruency with other sources, should be actively involved in assessment procedures. If professionals are to increase the probability of accurate assessment of young children, then information from a number of sources must be considered. The observation of parents

must be among the most important information gathered because parents are among the most frequent observers of the child.

According to Hunt and Paraskevopoulos (1980), the accuracy or match between parents' perceptions and their children's actual performance can be an important indicator of parents' ability to give children appropriate learning experiences. Such seemingly contradicting research findings related to the accuracy of parents as data resources may be due to methods employed to collect and compare assessment data or attributed to how parents subjectively perceive attributes of their children as contrasted to more impartial and objective assessment by professionals.

Some parents may have a distorted view or inaccurate perception of their child's abilities. These perceptions can take several forms. For some parents the perceptions take the form of overgeneralizing one aspect of the child's behavior. Parents may tend not to perceive their child as having both strengths and weaknesses and/or have trouble experiencing the positive aspects of their child's abilities or behavior.

Asking parents to focus attention on those positive or adaptive behaviors shown by their child cannot be underrated in importance. This tactic can serve to provide a sense of perspective to the parents regarding their child's overall behavioral pattern. For example, it is not unusual for a single behavioral excess or deficit in a child to generalize in the minds of the parents such that the youngster is perceived as having virtually no positive qualities. For other parents the perception takes the form of a too narrow perception of their child's abilities. Some parents find it acceptable to view their child as

having a motor problem but may fail to accept other problem areas the child may be demonstrating. By helping parents to focus on the concrete behaviors of their children, by giving the parents feedback on the strengths of their child, and by the feedback that parents receive from other parents as well as professionals, the parents' perception of their child begins to change. Parents may come to see their children in a more differentiated way and gain a better perspective on their children's strengths and weaknesses.

Purpose of the Study

The purpose of this study was to determine the extent to which parents and professionals were in agreement prior to and following intervention regarding the judgement of gross motor abilities of preschool children. Specifically, the study compared parents' and professionals' judgements relative to actual performance of 4 year-old preschool children. With this in mind, the study was designed to meet the following objectives:

1. to determine the degree of agreement between parents' perceptions of preschool children's gross motor abilities and judgements of the same children by professionals, and

2. to investigate the effect that intervention will have on parents' perceptions of their own children's abilities.

Significance of the Study

The information gained in this study may be helpful in improving parents' understanding of their children's current level of motor functioning. The knowledge about how to observe or look at children may influence parents' perceptions of their children's abilities, and bring parents' observations into more realistic agreement with professional judgement of children's actual performance. Through greater exchange of information between parents and professionals, closer communication and improved relationships could result. Concurrent with this practice could be the development of extended home care in terms of interaction between parents and children.

Hypotheses

The following hypotheses were examined in this study.

1. There will be no significant difference between parents' perceptions of their children's gross motor abilities and professional assessment of the same, prior to intervention.
2. There will be a significant difference between the pre and post perceptions of parents as a result of the observational training intervention.
3. There will be a significant difference between the perceptions of parents in the intervention group as compared to parents in the non-intervention group following the observational training.

Statement of the Problem

The purpose of this study was to determine the extent to which parents and professionals were in agreement prior to and following intervention regarding their judgement of the gross motor abilities of the parents' preschool children. A secondary question sought to determine if parents' perceptions could be brought into closer agreement with professional judgement through the influence of information on how to observe children's gross motor abilities.

Delimitations of the Study

The study was subject to several delimitations. The sample population was delimited to 56 parents and 28 children residing in the Corvallis area of Oregon. The Test of Gross Motor Development was used to assess children's performances. Gross motor skills were delimited to 12. One trained observer assessed children's performances. The primary investigator served as the intervention training instructor. Only one questionnaire developed by the primary investigator was used to collect information on parents' perceptions. The children observed in this study came from only one age range which negates generalization to other age levels.

Limitations of the Study

This study was subjected to some limitations. Since the study incorporated a questionnaire format, it is possible that parents may have responded according to some perceived expectation rather than

their own judgement. In addition, although parents were asked not to discuss the study or training, it is possible that some may have acquired additional sources of information. Furthermore, because, most parents, in general, were associated with a university, they may not be a representative sample of the population. They could have higher expectations of their childrens' abilities.

Definition of Terms

Many terms used throughout this study are considered to be self-explanatory. Definitions or abbreviations are provided for terms used frequently and which may not be understood within the context of this study:

Attribution: An inference that an observer makes about the causes of events or behavior, either his/her own or that of another.

C.P.P.I Composite Parent Professional Index (Parent score less Professional score).

Expectations: A predictive statement about the outcome of behavior, that is, how the actor is likely to behave in the future (Ross, 1977).

Gross Motor: "The skillful use of the total body in large muscle activities that requires coordination of movement of a number of body segments (parts) simultaneously". - Williams (1983)

Handicap: The results of any condition or deviation, physical or mental, that inhibits or prevents achievement or acceptance (Kelly & Veergason, 1978).

Intact Family: Both (2) parents and all children living within the same household.

Perceptions: The meaning which is attached to a particular object, or concept, and is demonstrated by assignment of symbols (signs), a mental construction of an object (Heise, 1979).

TGMD: Test of Gross Motor Development developed by Ulrich (1985).

CHAPTER 2

REVIEW OF RELATED LITERATURE

Introduction

One of the difficulties that sometimes prevents communication between parents and professionals lies in the different views of the child and knowledge about child growth and development that parents may have in contrast to professionals. De Lissoroy (1982) surveyed parents to determine at what age most parents think babies can accomplish a variety of developmental tasks. Parental perceptions of when children were able to complete developmental milestones were totally out of line with developmental milestones. Fathers, for example, believed that babies could sit alone at 6 weeks; the norm is 28 weeks for normally developing infants.

As Honig (1979) further noted, a thorough knowledge of normal and delayed developmental stages and processes can help not only parents but also help a provider help parents. Parents have a basic right to child development knowledge. As Karnes (1979) has advised, "Think of parents as teaching resources who can contribute knowledge about and insight into their children helping you to enhance educational programs". (p. 179)

Recent years have seen a rebirth in the topic of how parents make inferences about their children's abilities, a topic vicariously labeled person perception, social cognition, attitudinal belief, expectation, and attribution. The present research was directed to

one particular aspect of this general topic: The question of parents' understanding about their children's abilities in the motor domain.

The central focus of the study was on parental perceptions. The study was conducted to determine the extent to which parental perceptions of their children's motor abilities were in agreement with those of professionals when (1) both used different mechanisms to make the judgement and when (2) parents were given additional information, similar to that held by professionals, on how to assess children's gross movements.

Perceptions and Expectations

Perception has often been defined in various ways with some obvious similarity. For example, Bartley (1958), Singer (1982), Mercer (1982) and Kerr (1982) all defined perception as including a form of discrimination or interpretation of sensory stimuli. Solley (1960), Kerr (1982) and Sage (1984) further emphasized a conscious organization of information which gives new meaning to a situation. What seems yet to be a more complete workable definition is that offered by Neiser (1976), "Perception is a constructive process. First, the perceiver anticipates he will perceive certain kinds of information. These anticipations are based on previous experience and the perceiver's previous schemata. The outcome of the experience will modify the original schemata."

The present study defines the concept of parental perceptions in a different way than has been used most commonly in achievement literature directed at contextual issues other than the motor domain.

Sometimes expectation rather than perception has been the choice of the variable being measured. For example, Callard (1968) measured parental achievement expectancies in the sense of a generalized granting of independence to children or an expectation as to the age at which a child will be expected to accomplish particular developmental tasks. Parental expectation was also used by Rosen (1959) who measured parental expectation of success on specific tasks the child was to perform subsequently. This meaning was further defined by Marcus and Corsini (1978) as the parents' expected level of performance for their child on several concrete tasks.

The definition used for this research has been applied to the concept of perception. It does, however, incorporate (1) an expected age timeframe for achievement, (2) an expected degree of success, and (3) level of performance. Perception is seen as a more appropriate construct to use because it implies a more informed consciousness of events, things, people within one's own experiences. This definition offers more suitability for measurement and comparison to other judgemental observations of our environment. It can also be "verified by further meaningful motivated action" (Gove,1981); which suggests that perceptions can be either confirmed or disconfirmed and altered.

It is unclear when during the preschool period parents perceive or decide that their children are capable of acquiring certain skills and how in tune parents are with the growth that occurs during this period. In studying areas other than motor development, Gleason et al (1977) found that parents of older toddlers were more accurate than parents of younger toddlers in predicting their children's cognitive,

linguistic, and affective development. Similarly, it would be expected that parents' accuracy at predicting their children's motor performance would increase with age of the children.

Gleason et al. (1977) suggested that parents' perceptions may reflect stereotypes of prototypical development, rather than perceptions gained through interactions with their children. A similar finding by Hiebert and Adams (1987) that parents of older preschool children were no more accurate than parents of younger preschool children in their perceptions supports this notion. More extended opportunities for interaction did not make parents more accurate in perceiving children's performances. These views appear to be sensitive, however, to changes observed during the preschool years: parents of older preschool children made more accurate perceptions than parents of younger preschool children, paralleling the increase in children's performance from 3 to 4 years of age. Related to parents' perceptions of their children's abilities, some other questions have attempted to determine the nature of fathers' and mothers' perceptions. Fathers often have been perceived as less involved with their younger children (Rebelsky & Hanks, 1971). Consequently, they would be expected to be less aware of their children's capabilities than mothers. The results of a study by Gleason, Grief, Weintraub & Fardella (1977) suggest that this view of fathers may be inaccurate, although both parents' perceptions differed significantly from their child's performances. The absence of previous work on parents' perceptions of children's motor development makes a hypothesis on the nature of their perceptions seem necessary due to the important role that they have in children's early development.

Parents' and Teachers' Perceptions

Winetsky (1978) has noted the conflict that can exist in children, even at the nursery school level, when there are discrepancies between the expectations of home and school. Such discrepancies may be particularly important in relation to basic tasks on which many teachers ask parents to work with their children. If parents' perceptions show discrepancies from their children's teachers, this situation could become even more difficult as children make the transition from home to school.

There are several theoretical and practical reasons to suggest that parent and teacher perceptions might differ from one another. For instance, the home and school environment differ considerably and may elicit different behavior and skills on the part of the children. This may be because of differences in teachers' and parents' past behavior toward the child as well as the expectations each adult holds regarding the child's abilities (Archibald, 1974). Differing motivational and self-presentational needs of parents and teachers might also lead to conflicting reports, even if the child's behavior and level of functioning are identical when in the presence of parents and teachers. For instance, teachers may be motivated to present the progress they have made with the child in a positive light, and thus view the child's behavior more positively than is actually the case (Beckman, 1970). Similarly, parents may report their child's progress in either an overly optimistic or pessimistic light, according to how they think the results of a questionnaire will be used or whether they

feel the statements they make will reflect well or poorly on themselves (Schlenker, 1980).

Furthermore, attribution theory suggests that parents and teachers may use different attributional schemes and be susceptible to different attributional biases as they attempt to explain the children's behavior, thereby drawing conflicting conclusions about the causes underlying the behavior (Fiske & Taylor, 1983).

Assessment

An effective preschool program is concerned with certain questions. The most fundamental of these is, what the child's current developmental status is in each area of development. Assessment activities can provide information concerning the child's capabilities in language, motor, social, and cognitive functioning. These four areas are part of almost all developmentally based curriculums.

While work comparing parent and teacher assessments of children's level of functioning is sparse, there is some related work comparing parent perceptions of children's behavior and comparing parents' assessments with those of standard testing. For example, Pierce and Klein (1982) found substantial levels of disagreement between parent and teacher judgement, contradicting earlier work by Herjanic, Brown and Wheatt (1975) who found a relatively high level of correspondence. Related work shows that parents' judgements of their children show fairly good, but inconsistent congruence with standardized testing (Schopler & Reichler, 1972).

Historically, most studies concerned with parental perceptions have focused on the 'accuracy' with which parents view their child's intellectual development. Typically, parents are asked to estimate their children's developmental status in some way (e.g. I.Q., mental age). These estimates are then compared to the test results obtained by a teacher. Such studies typically report that parents either 'overestimate' their children's development, or are relatively accurate in their estimation (Wolfensberger & Kurtz, 1971). One problem with this approach is the assumption that estimates can be judged as 'accurate' or 'inaccurate' based upon these standards (Blacher-Dixon & Simeonsson, 1981). Another problem with this paradigm is that parents are often asked to make judgements concerning their children's developmental status without the benefit of the same assessment tools used by professionals or training in the use of these tools (Weller, Costeff & Rahman, 1974). Several authors have emphasized the importance of providing parents with assessment tools similar to those used by professional and the training needed to use them if comparisons are to be made concerning the consistency of parent and professional assessments (Blacher-Dixon & Simeonsson, 1981).

Gradel and colleagues (1981) reported a significant relationship between teacher-mother congruency scores and parental experiences as a data source as well as the amount of knowledge related to child growth and development. While assessment data collected by a diagnostician generally is afforded greater credibility, parents should not be excluded as sources of information. Sexton, Miller, and Murdock (1984) agreed that all parents, regardless of their predicted

or actual congruency with other sources, should be actively involved in assessment procedures.

Of primary importance for professionals is the opportunity to establish a "match" between the developmental status of the child based on assessment results and his or her learning environments in order to make curriculum and placement decisions. Irwin, Crowell and Bellamy (1979) concluded that this match will have more possibility of occurring relative to assessment data if results are corroborated across informants. The inclusion of parents as assessment team members provides an additional source of such comparative efforts.

Multisources

Assessment must be a comprehensive process of collecting information about child functioning across all developmental areas. It must cover all areas in order to provide the whole picture of the child's functional development. Comprehensive assessment often requires the use of multimeasures - a variety of devices and approaches in order to obtain a more thorough view of a child's developmental profile. It also requires a multisource assessment, which combines information about child functioning from a variety of perspectives: parent-teacher ratings, as well as interviews, curriculum-based records, and actual child performance.

Handen (1986) suggests that the judgements of neither parents nor teachers can be relied upon with complete confidence. The clearest conclusion to be drawn is that practitioners, whose need is for accurate, complete information, should routinely obtain multiple

assessments of children's level of functioning - not just from parents and teachers, but from others who have contact with the child. In fact, it is reasonable to collect information from fathers and mothers separately, as their experiences with their own child might well differ. Questionnaire items, Handen recommends, should be written as specifically and concretely as possible, since the more abstract hard-to-define questions elicit greater disagreement.

By comparing the responses from multiple sources, those involved in planning the treatment of children can determine in which problem areas there is good agreement, indicating the likelihood that treatment is called for,and those in which there is disagreement. Areas in which there is disagreement can be targeted for further assessment, using alternative procedures such as direct observation. Ultimately, of course, questionnaire responses cannot supplement direct observation of children, but by obtaining multiple measures of a child's skills and behaviors, treatment providers can obtain useful information to add to other sources of data.

Handicapped Children

The recent amendments to the Education of All Handicapped Children Act (1975) make significant changes in the organization and provision of educational services to handicapped preschool-age children. The new provisions provide guidelines that influence how specialists perceive, assess, and plan treatment for exceptional preschool learners.

The Individualized Educational Program (IEP) is still the cornerstone as well as the direct and tangible outcome of these new

trends as it had been with the previous mandate. Pertaining to handicapped preschoolers, the IEP format is a method for ensuring that comprehensive developmental assessment strategies function as a profile and base for curriculum planning (Meier, 1976). The well-designed IEP must be based on a full assessment of the child's current developmental status. It is a plan for going from current capabilities to higher levels of functioning. Assessment should provide the baseline of where a child is and give help in specifying targets for achievement.

A question regarding those persons who are responsible for assessment is whether the selected assessment instrument or battery of measures incorporate the perceptions about the young handicapped child of different people across different situations. Handen (1986) believes that a multisource appraisal helps account for behaviors that are emerging and situation-specific. It helps to standardize the judgements of teachers, parents, psychologists, and other specialists regarding the child's current status and developmental progress.

The multisource approach to assessing the capabilities of young handicapped children demands that parents be involved in the process of developmental diagnosis and goal-planning. Measures such as the Bayley scales and Gesell schedules focus upon actual child performance supplemented by parental reports of demonstrated skills. However, skills that have not generalized across situations and people and the functional disabilities of children require that reliable and descriptive parent estimates be compared with child performance.

Research concerning a parent's ability to estimate correctly the handicapped child's current functioning or future development varies (Anton & Dindia, 1984). Schopler (1978) concludes from his

investigations with psychotic children that parents are quite accurate in estimating their child's level of functioning in different areas of ability. He emphasizes, however, that these parents have greater difficulty in determining what to do and what to expect from this understanding; that is, they were uncertain about its significance for both the child's short-and long-range performance.

In contrast, studies yielding parental overestimation of ability relative to professional evaluation of future performance tend to reflect the hopes of parents rather than objective assessment. Keith and Markie (1971) reported that parents tended to overestimate the child's level of functioning in comparison to evaluations by health-care professionals. In addition, they concluded that the divergencies appear to be greater the lower a child's Development Quotient. Jensen and Kogan (1962), and Anton and Dirdia (1984) concurred with these findings, as they found greater differences in estimation occurring for children of lower I.Q.

Generally, parent reports of child capabilities are often considered unreliable. Their accuracy depends on many factors, including the clarity of the skills and how the question is asked. Many parents systematically overestimate child capabilities. Yet, parents of severely impaired children tend to portray more accurately their children's status.

In their study, Jensen and Kogan (1962) also showed differences with children who had more severe handicaps and were younger in age. There was a stronger positive bias in estimation of the children's ultimate level of development with parents of children under the age of four than parents of older children. Anton and Dindia (1984)

obtained similar results, indicating that parents of younger children tended to overestimate their cognitive abilities more than those of older children. A possible reason given for this finding was that older children demonstrate more advanced cognitive, motor and general neurological development making it easier for parents to make judgements of their children's abilities. In contrast, Boles (1959) found that parents tended to be unrealistic in their attitudes about their children's abilities and that parents became more unrealistic as the children grew older.

Keith and Markie (1971) pointed out that wide variation in judgements of behavior and disability can be a potential source of friction between parents and the professionals who work with the child; especially when discussing the child's disability. This implies the need for increased awareness of the professional about parental expectations and estimations of the child's future development.

Handen, Feldman and Honigman (1987) investigated the extent of parent and teacher agreement on the assessment of developmentally delayed children's behavior. While there was significant agreement between parents and teachers, there was no evidence that parents are differentially motivated to view their children more positively than is objectively the case. A primary factor underlying the efficacy of treatment programs for developmentally disabled students relates to the accuracy and specificity with which problems and deficits are initially identified. Without clear and precise information about the nature of disabilities and current level of functioning of an individual, an effective treatment strategy cannot be developed.

Professionals are not always able to elicit and observe significant behaviors within clinical and therapeutic settings. Problems may disappear in the presence of the clinician, or behaviors specific to the clinical setting may occur, masking maladaptive behaviors which are of primary concern.

It seems appropriate to solicit behavioral assessments from both the parents and teachers of developmentally delayed children to determine their current level of functioning, and subsequently to plan and develop programs based on such assessments. However, as Evans and Sparrow (1975) have pointed out, there is a disproportionate reliance on formal assessment carried out by professional examiners to the exclusion of insights, knowledge, and judgements of parents. Indeed, involving parents in rating or assessment procedures regarding their handicapped child's behavior and development may yield clinically useful information about the child and about the parents (Wolfensberger & Kurtz, 1974).

Research findings suggest that parents can be effective evaluators of their handicapped child's abilities. Documentation on maternal assessment of children with significant biological handicaps, such as Down Syndrome and cerebral palsy has shown that subjective responses of mothers corroborate those of teachers or diagnosticians (Hanson, Vail, & Irvine, 1979). Ely, Healy, and Scmidt (1972) demonstrated that mothers were keenly aware of their child's gross motor accomplishments within the first year of life. Wolfensberger and Kurtz (1971) found that 75% of parental estimates of their children's current intelligence were found to be accurate.

Judgement-Based Assessment

Assessment, in order to be effective, must serve as a functional baseline for individualized programming. Traditional (norm-based) assessment practices that compare children are ineffective by themselves. Criterion-referenced procedures are more instructionally relevant but often force a view of the child in isolation in relation to some educational standard. In brief, measures must be selected that provide a picture of current child functioning, that compensate for impairments, and that lead directly to education prescriptions.

Recent research demonstrates that structured clinical judgements of parents and professionals are both useful in defining the functional capabilities of developmentally disabled children (Bagnato, 1987). As Sexton, Miller, and Murdock (1984) recommend, more research is needed in the area of parental-professional congruency during assessment procedures. They further suggest that the influence of performance-based versus informant - based instrumentation on parental-professional agreement would be useful in planning how to collect data from multiple sources. Multisource measures are clearly synonymous with interdisciplinary team procedures for child assessment. Early intervention research supports the value of multisource assessment in investigations of such areas as parent-professional agreement (Blacher-Dixon & Simeonssen, 1981; Gradel, Thompson, &Sheehan, 1981; Sexton, Miller, & Murdock, 1984; Bagnato & Neisworth, 1987).

Judgement-based scales seem to be a response to the mandate of the public laws to involve parents in the assessment process and the

need to assess handicapped children. Bagnato (1984) found some support for this when he addressed the issue of congruence among members of an interdisciplinary team, including mother. In their assessment of developmental and behavioral progress within a treatment program for handicapped preschoolers, using the Perceptions of Developmental Skills (Bagnato et al., 1978). The results clearly demonstrated that interdisciplinary team members maintained a high level of internal consistency in assessing both observed and perceived child skills and gains.

Judgement-based assessment collects, structures and quantifies the impressions of professionals and caregivers about child environmental characteristics. For example, toward the more subjective end of the continuum of instruments within this category, caregivers and professionals who know the preschool child might be asked to complete a scale regarding the child's activity level.

Judgement-based scales can be an important component in comprehensive assessment. Some formal assessment instruments are insensitive to small increments in the child's capabilities (Simeonssen et al., 1980). It is also important that parents can have personal input. More objective assessment neglects the invaluable opinions and impressions that can be offered by those persons who have known and worked with a child over time and context (Wolf, 1978). People make value judgements about children that influence teaching, treatment, and child progress. It is, then, vital to detect and possibly adjust the perceptions of parents, and significant others in the child's environment.

Judgement-based measures seem best fitted for detecting perception rather than for determining objective facts of child status. When the question is how parents and professionals view a child, these subject measures are appropriate. This phenomenological aspect is often neglected. It is often important to determine the correspondence of judgements among parents and professional who work with the child.

Test of Gross Motor Development

According to its creator, Dale Ulrich (1985), the Test of Gross Motor Development (TGMD) was developed to provide teachers with a tool for giving instruction on gross motor skill, and for evaluating the effectiveness of their motor-skill programs. It also was intended to serve as an instrument for researchers to use in measuring various aspects related to gross motor skills.

The test was developed as a criterion-referenced instrument with the ability to make norm-referenced decisions as well. The subjects provided national norms for children ages 3-10.

Ulrich (1985) established content validity for the test's 12 skills as representative of fundamental motor patterns through validation by motor development experts. Reliability was also reported to be well established with agreement in classification between 89% and 92%, and for mastery between 70% and 85% for the nonhandicapped group.

The gross motor skills have been distributed between two subsections - 7 locomotor skills and 5 object control skills. Each skill includes 3 to 4 behavior components which represent a mature pattern of the skill (see Appendix F). Internal consistency or

homogeneity of test items was rated at r = 0.85 for the locomotor subtest and r = 0.78 for the object control subtests.

In his review of the TGMD, Langendorfer (1986) provided an insightful analysis of the test. Langendorfer believed that the TGMD did not represent a "sequential manner of development for gross motor behavior" because it seemed to only be represented by mature components of behavior for many of the test skills. Change which Langendorfer believes should characterize motor development was omitted from the definition provided by Ulrich in describing the purpose of the TGMD. That change, in terms of an ongoing process, Langendorfer advances, is essential in any current theory of lifespan development. In summary, Langendorfer concluded that despite the TGMD's inability to detect developmental change, the test is useful in analyzing differences due to age.

Observational Performance Training

Observation and categorization of ratee behavior are the first step in making judgements about performance (Borman, 1978; Cooper, 1981). One way of increasing the accuracy of performance appraisal might be to increase the accuracy, of raters, in observing ratee behavior. Both Bernardin and Walter (1977) and Thornton and Zorich (1980) showed that rater errors are related to accuracy in observing and recalling specific behavioral events. Murphy, et. al. (1982) suggest that it seems likely that a relationship between observational accuracy and performance rating accuracy exists, since accurate observation is a necessary precondition for accurate judgements. However, they also state that it is entirely plausible that

raters who are highly accurate in observing behavior differ widely in the accuracy of their performance evaluations. In operational terms, it is difficult to completely separate behavioral observation from evaluation; the decision that the behavior you are observing fits into a specific category is in part an evaluative one (Cooper, 1981). This suggests that training programs designed to increase specific aspects of accuracy in observation (e.g., discrimination between performers) might have specific parallel effects upon the accuracy of performance ratings. Thus, training raters to make realistic estimates of the overall frequency of certain desirable behaviors may increase the accuracy of the overall level of ratings.

Borman (1978) presented a simple three step model for enhancing performance rating reliability and accuracy. The three steps referred to are (a) observing behavior, (b) evaluating each of these behaviors, and (c) weighting these evaluations to arrive at a single rating on a performance dimension.

Furthermore, to increase interrater agreement in performance ratings, according to this view, Borman (1978) suggests that training must focus on (1) standardizing the observation of behavior; (2) teaching raters common nomenclature for defining the organizational or societal relevance of the behavior that is observed (e.g. a frame of reference or defining the performance; and (3) emphasizing an understanding regarding the relative importance of different kinds of behaviors as contributors to effective performance.

Thorton and Zorich (1980) in discussing observer accuracy make a distinction between the processes of observation and judgement. They describe judgement processes that include the

categorization, integration, and evaluation of information. Observation processes, it is suggested, are more basic, including the detection, perception, and recall or recognition of specific behavioral events. They believe that increased accuracy in behavioral observation may lead to more accurate performance effectiveness ratings.

Rater training is just one method of improving observer accuracy. Observers are often simply told to observe carefully as much detail as possible, note specific behaviors, and take complete notes. For example, Weinrott, cited in Spool (1978), found that those subjects who systematically observed and tracked child behavior on a daily basis were more accurate in their observations. In summary, instructions to observe specific behaviors and training in some observation principles led to improved accuracy of observation.

Early approaches to rater training were concerned with the reduction of the classic psychometric rating errors of halo, leniency, and range restriction (Bernardin & Walter, 1977; Borman, 1975). Training effectiveness was evaluated by examining whether training improved certain psychometric properties of the rating data; for example, whether the amount of halo had changed.

A second rater training approach is exemplified by the work of Latham and his colleagues (e.g., Fay and Latham, 1982; Pursell, Dorsett, & Latham, 1980). Based on principles of learning, Latham, et al. (1975) developed a workshop for training raters that uses a structured videotape approach aimed at reducing errors through intensive training in making correct observations.

In another approach to rater training, Thornton and Zorich (1980) demonstrated that training raters to avoid systematic errors of

observation led to increased accuracy of observation and recall of behavioral events.

Another approach to rater training has been termed frame-of-reference training (Bernardin, 1979, cited in McIntrye & Smith, 1984). In this training, norms of effective performance behaviors are developed empirically. Training effectiveness is measured in relation to specific standards, and trainees are given observation training on the correct behaviors that define the frame-of-reference. Much support for the use of this method comes from McIntyre, Smith, and Hassett (1984); and from Hedge and Kavanagh (1988).

Hedge and Kavanagh (1988), further supported recommendations by Borman (1979), Bernardin and Buckley (1981), Latham et al (1975), Thornton and Zorich (1980) in regard to observational training. Particular advantages cited by the authors were avoidance of systematic errors of observation, opportunity for participants to practice rating, with feedback on how their ratings differed from correct ones, and discussion of why observation errors affect performance rating accuracy.

Parent Training

According to Wyk, Eloff, and Heyns (1983), parent training in a group context is one method employed to accommodate parental needs. Although much has been accomplished, much remains unknown about the effects of training parents. In the analysis of parent training, Wiese and Kramer (1985) reported that little research has been conducted with parents of normal children. Even

less evidence is available which supports much research having been conducted on parent training in schools. Yet there remains an obvious need to work with parents through the schools in developing special skills.

Potentially efficient and cost-effective training methods can be used for small groups of parents with the use of standardized videotape modeling programs. Observational techniques allow the investigator to amass a large body of information on young children for whom the collection of data is possible or desirable. Videotaped approaches have the advantage of mass dissemination of data or information and with low individual training costs. Nay (1976) found videotape modeling alone to be as good as videotape modeling plus role playing and better than written presentation or a lecture in teaching time-out skills. Flanagan, Adams, and Forehand (1979) found videotape modeling to be superior to written presentation, lecture, and role playing. O'dell, Krug, Patterson, and Faustman (1980) found videotape modeling plus individual checkout with a trainer to be superior to live modeling combined with rehearsal in teaching parents reinforcement skills. Consistent with these views, Webster-Stratton (1984) reported that videotape modeling, and trainer-led group discussion, appeared to be highly effective in training parents. The variety of issues raised for discussion by the videotapes may contribute to parents' ability to generalize skills to new situations and problems (Webster-Stratton, 1984). Additionally, videotape modeling, and small group discussion, enables more parents to be trained in the same amount of time.

The results of other studies (O'Dell, 1985; Sanders & James, 1983, Snell & Beckman-Brindly, 1984) have concluded that effective training techniques most frequently incorporate modeling, practice, and specific feedback, as well as a system for monitoring performance

Flanagan, Adams, and Forehand (1979), in teaching parents to use time-out contingencies found that mothers were effectively able to apply what they learned in the natural environment. They used a lecture format, a printed pamphlet, a videotaped modeling presentation, and a structured role-playing session. They held only one 70-minute session.

The results of a study by Glogower and Sloop (1976) showed that combining the teaching of behavioral principles with training in applying these to specific problems enabled more mothers to successfully apply this knowledge at home.

Peed, Roberts, and Forehand (1977), by means of attitude scales and checklists, gathered information on parental judgements about child behavior. The analysis of results of this study revealed that the behavior of mothers changed in direction of the predicted outcome.

Parent group training has often been restricted in participant numbers as well as duration of training with much success. Restrictive group training involves the provision of a limited number of group training sessions. Group training is economical and provides an emotional support system with other parents. Jenkins, Stephens, and Sternberg (1980) suggest that problems include practical obstacles such as childminding and transportation, difficulties in prioritizing each family's needs, and the inability to deal comfortably with individual problems in a group setting.

Gordon, Lerner, and Keefe (1979) conducted a parent training program with a small group, which was assumed to allow the group leader to more effectively instruct the participants in the intervention methods of the parent training program. Another such group program conducted with parents was described by Hall, Axelrod, Tyler, Grief, Jones, and Robertson (1972), who reported success in teaching behavioral child management classes. Class size was 40. Class structure was discussion, supplemented by lectures and videotapes.

Summary

There are many arguments for including parental input during the identification process. Among these are federal and in some cases, state legislation mandating such participation. However, there are other very practical reasons. Parents are the people most familiar with their child's personal history and are knowledgeable about the status of the family unit.

Parent consultation can be valuable during initial screening of 'high risk' children because they are in many cases the primary caretakers who observe their children in a variety of contexts and circumstances that are not available to professionals. Parents see their children as they interact with other family members and neighbors. They see them attempting new tasks and they note explicitly or implicitly, accomplishments of developmental milestones. As a result of these observations and the inevitable comparisons that they make with other children, parents are aware of their children's status in many developmental areas. Finally, it is important to seek parental input because parents will share their concerns when they feel that

their child is experiencing problems. According to Green (1988), many agencies that are responsible for identifying young children with handicaps report that parents account for the majority of initial referrals that their agencies receive.

Parents' observations of their children may be particularly useful when it comes to characteristics and behaviors that are observed more easily at home than in school or intervention programs. It may be possible to maximize parents' contributions to such programs by focusing on information that they have some basic knowledge of and more access to than professionals.

With this in mind, it seems important that parents be given adequate opportunity to communicate their observations as accurately, as possible. Badger (1971) trained mothers to be more aware of their children's capabilities. This resulted in a positive effect on the quality of the mother-child interaction. Badger's effort to improve the accuracy of parents' observations of their children is based upon the assumption that greater accuracy in observing their children's capacity and understanding would render them more likely to arrange situations of interest to their children and less likely to keep them in boring situations or ones demanding adaptive modifications beyond their current capacities.

Findings by Hunt and Paraskevopoulus (1983) confirm this theory. They concluded that parents who had high expectations of their children provided less supportive developmental environments than mothers who were more accurate in their predictions.

Conversely, but equally supportive, Gradel, Thompson, and Shulman (1982) concluded that parents who have relatively accurate

views of their children's development are more capable of providing them with appropriate learning situations. Training parents, Badger (1971) reported, to more accurately assess their children's capabilities may similarly facilitate the emergent physical as well as mental experiences that children may have, and the interface between home and school experiences. As Badger further noted, a preliminary step to training studies, however, lies in establishing the origin, development, and effects of parents' perceptions about their children's abilities.

According to Kroth (1981), parents should be recognized as the major teachers of their children, and professionals should be considered consultants to parents. Even though professionals may provide parents with information and skills, those parents also are able to aide professionals and other parents. With appropriate assistance parents can improve their skills in working with their children, help professionals assist the students at school, and aid other parents in understanding and working with their children.

CHAPTER 3

METHODS AND PROCEDURES

The purpose of this study was to determine the extent to which parents and professionals were in agreement prior to and following intervention regarding their judgement of the gross motor abilities of preschool children. This research also studied changes in parents' perceptions of their children's motor performance following an intervention treatment designed to provide parents with information about the motor skills of young children.

The study consisted of administering the Test of Gross Motor Development (Ulrich, 1985) to a sample of 28 preschool age children (16 boys, 12 girls). The children had a 4.0 to 4.11 month age range, with a mean age of 55 months. At the same time the children were tested by a professional, their parents (56) were being asked to completed a questionnaire, designed to determine the parents' perceptions of their child's motor development. The TGMD, a criterion-referenced, performance-based instrument was utilized to provide an objective professional standard for pre-intervention and post-intervention comparison. The parent questionnaire contained statements related to gross motor skills identical to those assessed by the TGMD. This strategy permitted a subjective assessment of parents' knowledge of their children's motor abilities, as compared to the professional standard.

The second phase of this study involved the assignment of parents to an intervention group for the purpose of training them to

become better observers of motor development. At the conclusion of the intervention period, parents in the treatment and control group completed a questionnaire similar to the one completed prior to intervention.

Selection of Subjects

Twenty eight preschool children and their parents (56) participated in the study. The parents were initially contacted through the school by a letter which included an abstract of the study and an informed consent form to be returned to the preschool. The parents and children were residents of the Willamette Valley area of Western Oregon. The sample population included children from several local preschools, and a graduate family residential complex. The subjects were largely middle class parents, most of whom were affiliated with the Oregon State University. The complete sample (children and parents) consisted of intact families (both parents residing together with each child), who volunteered to participate in the study. Parent participants were randomly assigned to a non-intervention (control) group or an intervention (treatment) group for the purpose of data collection and comparison.

Setting

Data were collected at a university gymnasium that allowed for adequate space for administering the TGMD, and provided a separate areas which allowed for parent participation in the study. During the pre-data collection period both parents and children were involved, with children in the gymnasium and parents in a separate room. The

sessions for both child and parents occurred concurrently, with approximately 30 minutes required for each session.

Research Design

The overall design for the study involved a pre and post-intervention period, with intervention (treatment) and non-intervention (control) groups. Multiple dependent measures were utilized. One set of dependent variables consisted of parents' perceptions of children's motor development. Another set of variables was created by calculating discrepancies between parents' perceptions, and professional judgements of the motor performance of the parents' children.

Instrumentation

Parent Questionnaire

A questionnaire was developed, field-tested, and then revised with the assistance of the Oregon State University Survey Research Center. This paper-and-pencil measure asked parents to rate their child's ability to perform specific motor skills classified as locomotor or object control.

A Likert scale format was adopted for the questionnaire because of its reported superiority in attitude measurement (Title, 1965). Rating scales of the Likert-type also allow the investigator to discriminate rater responses and individual differences.

Following a brief verbal description of each specific motor skill, the parents were asked to rate their child's present ability to perform

the task, based on a 4-point rating scale, ranging from the child having no success to considerable success. Consistent with the number of items on the TGMD, the parents were asked to rate the child's ability on 12 motor skills.

The post-intervention parent questionnaire asked questions which were identical to those presented on the pre-intervention questionnaire. These related to their child's degree of success on each skill.

Child Performance-Based Assessment

To obtain an objective measurement of children's gross motor abilities, the "Test of Gross Motor Development", a criterion-referenced instrument, developed by Ulrich (1985) was used. The test itself measures 12 gross motor skills commonly taught to preschool and elementary school children. The 12 skills are distributed among 2 subtests, 7 locomotor skills (e.g. running, hopping, skipping) and 5 object-control skills (e.g. catching, kicking, throwing). As per test protocol, each child was allowed 3 trials for each skill attempted. Scoring of a child's overall performance on each skill was recorded as observed success on 2 out of 3 trials. Having met the criterion for success, a one (1) was recorded, or in the case of non success - zero (0) was recorded. Each motor skill contained either 3 or 4 components. Because each component behavior was identified, each component received a separate rating (1 or 0); therefore resulting in a total possible raw score of either 3 or 4 for all components combined within each skill.

Prior to the child assessments, a professional rater was trained for a period of 2 weeks on the use of the TGMD. Videotapes of pilot study children were used for training and final prestudy reliability assessment. Videotapes rather than live observations were found to be more convenient and useful for replay and pause situations which required verification of specific movement sequences.

The primary investigator and one other assistant, charged with responsibility for administration of the TGMD, also took part in this professional training period. Their contribution was to help establish reliability of agreement for professional judgement of the motor skills utilized during the pre-intervention of the study. Following training, all three professional raters achieved the minimum average criterion of 86% interobserver agreement for each of the major tasks presented on the assessment instrument (TGMD).

The observers were said to be in agreement if they concurred in the scoring of a specific behavior over two observations. Percentage of agreement between observers was then calculated as the number of agreements divided by the number of agreements plus disagreements x 100. Percentage of interobserver agreement for all tasks was established at 88 %.

Both research assistants were used for collecting data during the pre-training period, and assessing the performance of the children taped for presentation during the intervention period. Children used as participants in the pilot were not included in the study.

Procedures

Upon arriving for the study, the two parents and child were taken to their respective area-gymnasium for the child, and nearby room for parents. Both child's and parents' sessions were conducted simultaneously, with each lasting approximately 30 minutes.

Professional Assessment Session

Prior to assessing each child with the TGMD, a familiarity period was provided. During this time hand preference was determined. This was done to insure that skills were performed with the preferred side. The child was then tested with a series of 12 motor skills. Each skill was preceded with a demonstration by the test administrator to assist the child's understanding of what was being asked of him/her. During this time a professionally trained observer evaluated and recorded all behaviors which contributed to the mastery or nonmastery of each skill. Upon a cue received from the observer, the test administrator proceeded to the next skill. This allowed the observer adequate time to score and record the evaluation. This procedure continued until the child had an opportunity to perform all twelve skills. Three trials (attempts) were allowed for each skill. A correct behavior on two out of three trials was used as the criteria for evaluation on all the skills. The test administrator provided positive feedback to all children in the same manner preceding and following performance of each skill, e.g., "Do Your best", or "Good throwing". If the child demonstrated considerable difficulty with any skill, the task was modified to allow for an extra non-recordable trial, in order for

the child to experience some success. This procedure was followed only after the recording of actual trial data.

Parent Pre-Intervention Session

Each set of parents was accompanied to a special room by the investigator. Upon arriving, the parents were provided with specific instructions that explained the use of the questionnaire to which each parent was asked to respond. Each parent had to respond to a series of questions by making judgements concerning the performance of their own child, based on recall of interaction with their child or indirect observation of their child's physical movement. All questions corresponded to the 12 skills on which their child was being tested in another room.

In order to maintain independent responses, parents were asked not to consult with each other at any time during the session. To minimize this occurrence, the investigator positioned himself between each parent. This occurred for all sets of parents.

Upon completion of their questionnaire parents were asked to remain in the room until professional assessment of their child was completed. At no time did parents observe the actual performance-based testing of their child. Perceptions of their children were based on the information provided by parents during the initial pre-intervention session as well as the post-intervention session.

Parent Intervention

Following initial collection of data pertaining to perceptions of children's gross motor performance, all parents were randomly assigned to either an intervention group that would receive further information regarding the motor skill development of children, or a control group that would receive no further training. Parents were informed of their involvement in the study at the time of their questionnaire session, but not notified of their exact role until after intervention schedules had been determined. Once this occurred, parents were contacted, by telephone, to arrange a time for training. The training consisted of two-ninety minute sessions over a two week period. A small group format was used for the intervention phase, with three to five sets of parents attending one of three scheduled training sessions each week.

A videotape/discussion format was used to introduce participants to the importance of being a good observer of children's motor behavior. Training included instructions to "observe carefully", "watch for specific behaviors", and "take notes whenever possible".

Parents were given handouts of information showing developmental sequences of motor patterns without age-related correlates. This was done to minimize stereotypic observation over time associated with age or gender. Ulrich, Ulrich, and Branta (1988) recommend that in order to reduce the misconception that the performance of motor skills is age-dependent, it might help to observe older children at lower levels of performance and younger children at higher levels of performance. Additionally, parents were

also given a motor skill component checklist to record their observations during videotape observations.

The behavior components contained within the Test of Gross Motor Development were presented to parents as they observed children performing the tasks. For contrast, three children demonstrating a range of skill levels were shown to the parents. After receiving feedback on how to "look" at the children, parents were then given the opportunity to evaluate the children on the tapes independently, followed by a discussion among members of the group. Correct responses were eventually provided by the investigator. This strategy was conducted for each skill represented in the TGMD.

An adaptation to the frame-of-reference training first described by Bernardin and Buckley (1981), was used in developing the intervention treatment, and consisted of the following phases:

1. Participants were given a description of a performance and instructed to discuss the behaviors which they believed necessary for the performance.

2. Participants were shown three video segments of children performing the specific skill under discussion. The videotapes respectively represented outstanding, average and unsatisfactory performance.

3. Parents were asked to rate the performances on behaviorally based rating scales (TGMD) and write out their justification for the ratings.

4. The trainer informed the parents about what the correct ratings should be, based on normative and developmental data, and what the rationale was for each rating.

5. There was a discussion to follow that focused on discrepancies between "true" ratings and parent ratings.

6. Parents were instructed and guided in the use of the total body approach to observing and describing actions of the body (Seefeldt & Haubenstricker, 1982).

Parent Post-Intervention Assessment Session

To determine the extent of change resulting from the observational training, parents were asked to return for a post-training questionnaire session. The post-treatment session took place one week after the completion of the intervention period. All parents, including non-intervention parents, were involved in this phase of data collection. Conditions for this session were similar to those associated with the first session.

Data Analysis

Paired-t tests were employed to measure initial differences between parents' perceptions and professional assessments during the pre-intervention period; and differences between parents' perceptions over time from pre-intervention to post-intervention. Student-t tests were used to analyze differences between intervention and non-intervention groups following the observational training intervention period. An alpha level of .10 was used in this study.

Child performances on the TGMD yielded raw scores. Professional judgements on the performances were recorded along a continuum, i.e., rating of 1 indicates successful performance on components, while a rating of 0 signals an unsuccessful performance

on components. A maximum raw score for the sum of all components within a motor skill behavior was either 3 or 4.

Parents' perceived ratings were also recorded along a continuum, i.e., with a 4 rating indicating no perceived difficulty in performing a skill, while a 1 rating represented much difficulty or no success at performing the skill.

In order to generate an index to measure change in the parents' perceptions as related to professional judgements, a standard score was introduced. The raw scores obtained from both parents' perceptions and professional judgements were converted into new measures. The raw scores for each skill on the parent perception measure ranged from 0-3, and the range of raw scores for each skill on the TGMD was 0-3 or 0-4. The maximum total raw score obtainable from each parent questionnaire was 36, and 45 from professional assessment of each child. Consequently, the raw scores for each of the measures were converted into standard scores ranging from 0-12. Therefore, the maximum total standard score obtainable from each parent questionnaire, and each professional assessment was 144.

CHAPTER 4

PRESENTATION AND ANALYSIS OF DATA

The purpose of this study was to determine the extent to which parents and professionals were in agreement, prior to and following intervention, regarding their judgement of the gross motor abilities of the parents' preschool children.

The information in this chapter will be divided into the following sections: (1) description of the subjects, (2) analysis of results of the study, and (3) discussion of the findings.

Description of the Subjects

The study sample consisted of 56 parents (28 sets - mothers and fathers residing together with their child), and 28 preschool children (16 boys, 12 girls) within an age range of 48 months to 59 months with a mean age of 55 months. All parent subjects and their children resided within the Corvallis, Oregon area and were obtained primarily from four preschools, and a graduate family residential complex. The subjects were largely middle class parents, most of whom were affiliated with the Oregon State University. Following initial testing of their children by a professional, and acquisition of parent perceptions of their children's abilities, all parents were randomly assigned to either a non-intervention (control)) or intervention (treatment) group.

Analysis of the Results of the Study

Three hypotheses were established. Hypothesis 1 was stated in the null; and Hypotheses 2 and 3 were stated in the alternative form. Hypotheses 1 and 2 were examined utilizing one-tailed paired-t tests for pre-intervention data and some post-intervention results. Hypothesis 3 was examined using a one-tailed student-t test. The .10 level of significance was utilized for all hypotheses:

H_1: There will be no significant difference between parents' perceptions of their children's gross motor abilities and professional assessments of the same, prior to intervention.

H_2: There will be a significant difference between the pre and post perceptions of parents as a result of the observational training intervention.

H_3: There will be a significant difference between the perceptions of parents in the intervention group as compared to parents in the non-intervention group following the observational training.

The first hypothesis examined the similarity between how professionals and parents assessed the performance of the parents' children on selected gross motor skills. To obtain perceptions of their children's gross motor ability, parents were asked to complete a questionnaire. The same skills which parents rated were assessed through formal observation of the children's performances by a professional.

Raw data obtained from the parent questionnaires and professional assessments were converted to standard scores representing a common measure of comparison for analysis of differences between professionals and parents. Standard scores for professional assessments and parent questionnaire responses are presented in Appendix G.

Means of the standard scores for parents, mothers, fathers, and the professional observer are found in Table 4.1. Mean differences between each group and the professional observer are reported as well. Parents, in general, tended to rate their child's gross motor abilities higher than the assessment provided by professionals. Mothers and fathers, on the average, rated their children similarly.

The computed paired t-values comparing the observations of parents to the professionals prior to intervention are also found in Table 4.1.

As indicated by Table 4.1, the t-value for parents and professionals ($t = -4.39$) was significant at the .01 level ($p < .0001$). Significance was also reported at the .01 level of significance between mothers and professionals ($t = 2.70$), and between fathers and professionals ($t = 3.68$).

Therefore the null hypothesis, that parents' perceptions of their children's gross motor abilities will be no different from professionals' assessments of the same children, was rejected.

Table 4.1

Comparison of Parents' to Professionals' Pre-Intervention Mean Standard Scores with T Values and Corresponding Significance Levels (P) from Paired-T Tests

	Group Means				
Parents	Parent Perceptions	Professional Assessments	X Diff.	T-Value	P
All	92.64	76.32	16.32	-4.39	.0001*
Mothers	92.71	76.32	16.39	2.70	.0058*
Fathers	92.57	76.32	16.25	3.68	.0005*

* significant at .01 level

Comparison of Groups - Pre-Intervention and Post-Intervention

The second hypothesis that was addressed concerned the influence of observational training intervention on parents' perceptions of their children's gross motor skills.

The mean standard scores for the intervention and non - intervention groups at pre-intervention and post-intervention are presented in Figure 1. Also reported are the mean professional standard scores obtained prior to intervention, and utilized for comparison of pre-intervention and post-intervention data.

Several trends can be observed from an analysis of this data. First, there appears to be only minimal difference between scores mean values for both groups at pre-intervention. Relative to change

over time, there appears to be a reduction in scores for parents in the intervention group, with movement closer to professional scores. Conversely, scores for parents in the non -intervention group show a slight increase, with a movement away from professional scores.

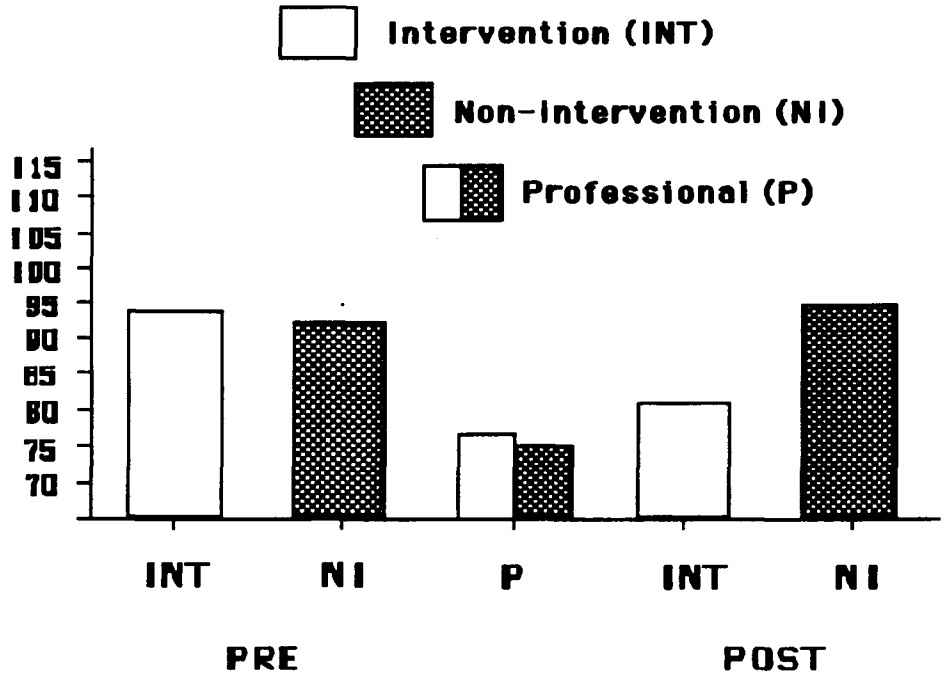

Figure 1. Mean pre-intervention and post-intervention standard scores for the intervention (treatment) and non-intervention (control) groups

Converted standard scores, by child, for mother and father within intervention and non-intervention groups are reported in Tables 4.2 and 4.3. Professional scores for each child are given as well. The raw data and associated descriptive statistics for individual standard scores of mothers, fathers, and professional are found in Appendix G.

Table 4.2

Standard Scores of Mothers, Fathers, and Professionals for Intervention Group at Pre-Intervention and Post-Intervention

INTERVENTION STANDARD SCORES

CHILD	PRE			POST	
	M	F	P	M	F
C - 2	116	116	70	92	112
C - 4	80	64	49	32	58
C - 6	112	96	91	96	80
C - 7	76	76	69	64	96
C - 11	56	48	55	52	52
C - 13	88	100	91	100	84
C - 15	116	104	78	68	92
C - 16	136	96	61	92	72
C - 17	124	104	74	120	112
C - 18	60	92	122	84	80
C - 20	76	84	86	64	48
C - 21	112	92	87	72	130
C - 27	116	108	64	100	88
C - 28	72	100	104	80	84
MEAN	95.71	91.43	77.21	92.00	98.43

KEY
C - 2 = Child
M = Mother
F = Father
P = Professional

Table 4.3

Standard Scores of Mothers, fathers, and Professionals for Non-Intervention Group at Pre-Intervention and Post-Intervention

NON-INTERVENTION STANDARD SCORES

CHILD	PRE			POST	
	M	F	P	M	F
C - 1	102	80	82	108	104
C - 3	128	132	111	124	132
C - 5	80	100	61	100	104
C - 8	96	104	70	60	84
C - 9	104	116	100	100	102
C - 10	44	104	64	60	96
C - 12	102	60	91	124	100
C - 14	64	78	33	76	64
C - 19	76	52	68	100	92
C - 22	52	80	48	32	32
C - 23	116	84	95	112	120
C - 24	48	100	102	96	100
C - 25	120	122	84	88	124
C - 26	124	100	47	108	104
MEAN	89.71	93.71	75.43	79.71	84.86

KEY

C-1 = Child tested

M = Mother

F = Father

P = Professional

As shown in both Table 4.2 and 4.3, overestimations of children's abilities were much more common than underestimations (parents' perceptions relative to professional assessments). This was similar at pre-intervention and post-intervention for both the treatment and control groups.

Table 4.4 represents the percentages of overestimations which occurred for each group at pre-intervention and post-intervention. As indicated, parents consistently overestimated their child's abilities. The lower percentage for intervention parents at post-intervention further verifies that observational training intervention did have some impact on reducing the tendency of parents to overestimate their children's abilities.

Table 4.4

Percentages of Overestimation of their Children's Gross Motor Abilities by Intervention and Non-Intervention Parents at Pre and Post - Intervention Periods

	INTERVENTION	N-INTERVENTION
PRE	86%	93%
POST	79%	100%

One-tailed paired-t tests (MacIntosh Statview, 1986) were conducted to compare the change within each group's pre-intervention and post-intervention scores. CPPI scores (differences between parent and professional standard scores) were used for analysis. The results of these analyses are summarized in Tables 4.5 and 4.6.

Table 4.5

T-Values and Corresponding Significance Levels (P) from Paired-T Tests on Intervention Parents' Pre-Intervention and Post-Intervention CPPI Scores

Parents	DF	$\bar{X}$ Diff.	T-Value	Probability (P)
All	27	11.29	2.84	.0044 *
Fathers	13	6.57	1.29	.1092
Mothers	13	16.00	2.67	.0105 **

* significant at .01 level

* * significant at .05 level

Table 4.6

T-Values and Corresponding Significance Levels (P) from Paired-T Tests on Non-Intervention Parents' Pre-Intervention and Post-Intervention CPPI Scores

Parents	DF	$\bar{X}$ Diff.	T-Value	Probability (P)
All	27	-3.50	-.824	.2085
Fathers	13	-4.71	-.793	.2211
Mothers	13	-2.29	-.365	.3606

As reported in Table 4.5, there was a significant difference reported at the .01 level in intervention parents' pre CPPI and post CPPI ($t = 2.84$, $p = .0044$), with the effect more noticeable with mothers. Thus the hypothesis, that there will be significant differences between the pre-intervention and post-intervention perceptions of parents as a result of the observational training intervention, was supported.

Some change over time for combined non-intervention parents occurred in the opposite direction, i.e., away from professional scores. This change, however, was not significant ($t = -8.24$, $p > .10$). Changes in mothers' scores and in fathers' scores were not significant: non-intervention mothers ($t = -.793$, $p > .10$) and non-intervention fathers ($t = -.365$, $p > .10$).

Mean CPPI changes in perceptions over time, from pre-intervention to post-intervention, are reported in Table 4.7.

On examination of Table 4.7, it can be observed that the mean CPPI for both mothers and fathers in this group was higher at post-intervention than at pre-intervention.

Table 4.7

Mean Pre-Intervention and Post-Intervention CPPI and Mean CPPI Difference for Intervention and Non-Intervention Mothers and Fathers

	PRE CPPI		POST CPPI		CPPI DIFF	
	MOTHER	FATHER	MOTHER	FATHER	MOTHER	FATHER
INT	18.500	14.214	2.500	7.643	-16.000	-6.571
N-INT	14.286	18.286	16.571	23.000	2.285	4.714

Table 4.8 represents further evidence of the relationship in scores between the pre-intervention and post-intervention periods. As noted, following intervention, twice as many intervention parents (20) as non-intervention parents (10) showed a reduction in their post intervention scores.

This finding indicates, following intervention, closer agreement between intervention parents and professionals, as compared to non-intervention parents and professionals.

Table 4.8

Contingency Table of Frequency of Change in Scores From Pre to Post Observation for Both Intervention and Non-Intervention Groups

	INCREASE	DECREASE	NO CHANGE	
INTERVENTION	7	21	0	28
NON-INTERVENTION	14	12	2	28
TOTAL	21	33	2	56

Hypothesis three analyzed post treatment differences between perceptions of the intervention group parents as compared to the non-intervention group parents. CPPI difference scores (post-CPPI less pre-CPPI scores) were examined using student-t tests

As reported in Table 4.9, a statistically significant difference, at the .01 level, was found between the intervention group and the non-intervention group relative to their change in perceptions from pre-intervention to post-intervention ($t = -2.57$), $p = .007$). Since the intervention and non-intervention groups did not differ significantly at pre-intervention on the dependent measure, this finding represents a post-intervention divergence in perceptions.

Upon closer examination of mean CPPI scores reported in Table 4.7, trends associated with these results can be observed. Table 4.7 reveals that both intervention mothers' and fathers' post-intervention

perceptions moved into closer agreement with that of professional assessment. Intervention mothers (mean CPPI differences = -16.00) experienced a greater change following training than intervention fathers (mean CPPI differences = -6.571). Non-intervention mothers (mean CPPI differences = 2.285), and fathers (mean CPPI differences 4.714) demonstrated greater disagreement with professionals over time. These trends are also apparent in Figure 2.

Table 4.9

T-Values and Corresponding Significance Levels (P) From Student-T Tests for Comparison Between Intervention Parents' and Non-Intervention Parents' CPPI Difference Scores (By Parents and Groups)

	DF	$\bar{X}$	S.D.	T-Value	(P)
Groups	54			-2.57	.007 *
Intervention	28	-11.29	21.15		
Non-Intervention	28	3.50	22.47		
Fathers	26			-1.44	.0805 ***
Intervention	14	- 6.57	19.01		
Non-Intervention	14	4.71	22.25		
Mothers	26			-2.09	.0231 **
Intervention	14	-16.00	22.79		
Non-Intervention	14	- 2.29	23.45		

* Significant at .01 level

** Significant at .05 level

*** Significant at .10 level

Figure 2 compares the mean CPPI scores for Intervention and Non-Intervention parents (Pre and Post).

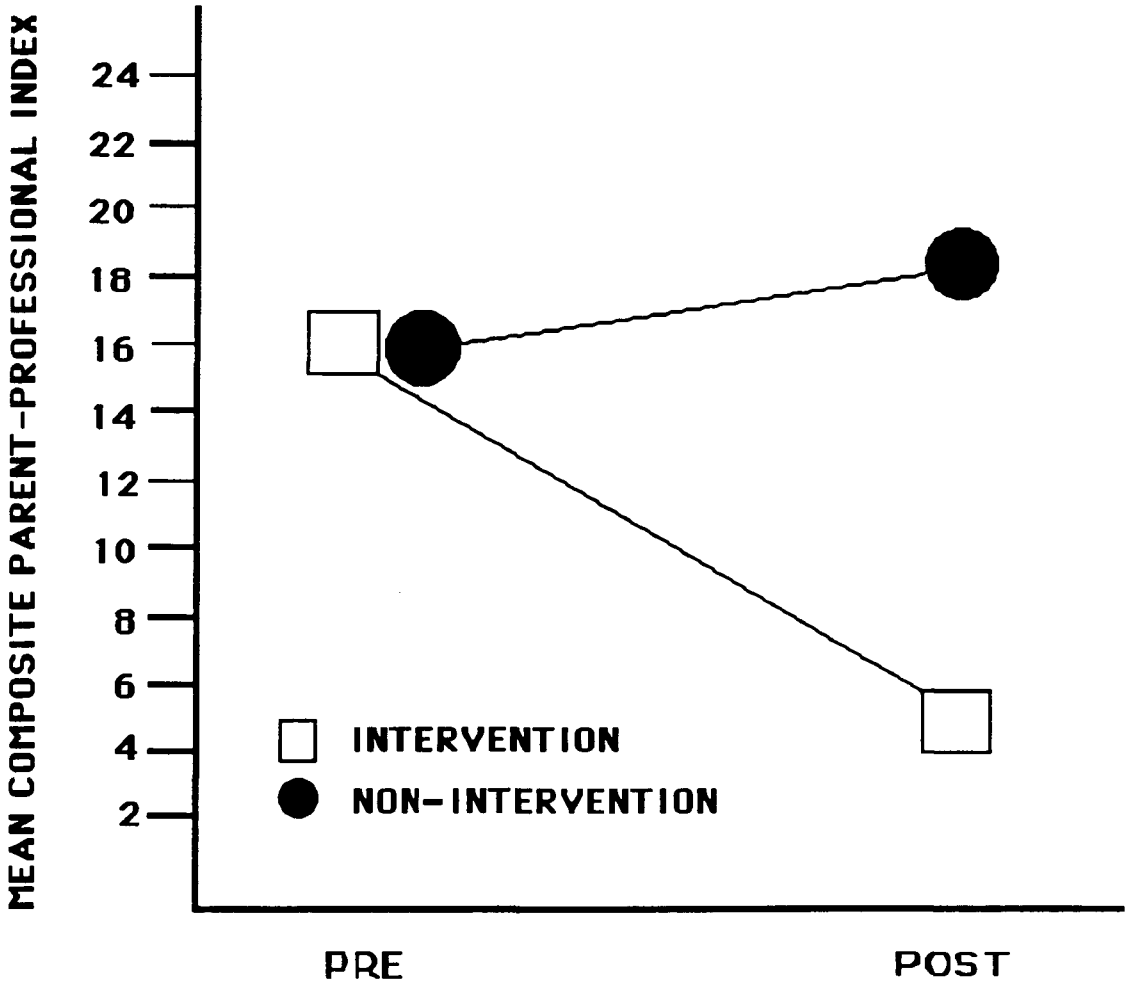

Figure 2. Comparison of Intervention and Non-Intervention Parents' Mean CPPI Change From Pre-Intervention to Post-Intervention

Summary and Discussion of Findings

In responding to a questionnaire designed to rate their children's gross motor abilities, parents reported scores that were in disagreement with the professional assessment of their children. This comparison between parents' scores and professional scores was found to be significant.

Parents in this study tended to overestimate their children's abilities as compared to professional assessment of the same children's abilities. Previous research performed by Blacher-Dixon and Simeonssen (1981), Keith and Markie (1961), and Anton and Dindia (1984) similarly reported parents' tendencies for overestimation of their children's abilities relative to professional assessment, though in areas other than gross motor skills.

The hypothesis that parents' perceptions of their children's gross motor abilities would be similar to assessments made by professionals was not confirmed. This was true for both mothers and fathers.

The results of this research empirically demonstrate that parents and professionals differ significantly in their judgements of the parents' own children.

There could be several reasons to suggest why parents and professionals were not in close agreement. For example, the home environment may differ considerably and may elicit different behavior and skills on the part of the children (Handen, 1987).. This may be due, in part to the perceptions and expectations that each parent holds regarding the child's abilities.

Miller (1986) suggested that "perhaps parents tend to hold unrealistically optimistic expectations of what their children can do". The parents' expectations about the gross motor behavior of their children could have strongly influenced what they perceived and consequently recorded (Ritter & Langlois, 1988). There is evidence that expectation bias can occur in observational data.

In operational terms, it is difficult to completely separate behavioral observation from evaluation; the decision that the behavior one is observing fits into a specific category is in part an evaluative one (Cooper, 1981). Performance evaluation requires complex, abstract judgements about the quality of performance.

One of the salient outcomes of this research concerns the effectiveness of using video-taped observational training to improve parents' observation and information gathering skills, i.e., perceptions of their children's gross motor abilities.

The present research indicates that observational training is an effective means of changing parents' perceptions of their children's gross motor abilities to approximate the level of professionals. Thus, parents in the intervention group reported significantly more accurate scores at post-intervention than during pre-intervention. In contrast there was almost no change in the non-intervention control group across time.

Results of this study support the recommendations by Borman (1979), Bernardin and Buckley (1981), Cooper, (1981), and Thornton and Zorich, (1980) for use of observational training. These researchers showed that observation is the first step in making judgements; and that by increasing, through training, accuracy in

observing behavior, then accuracy of performance appraisal will be increased. Thornton and Zorich (1980) further demonstrated that observational accuracy will also result in greater recall of specific behavioral events.

A videotaped lecture introduced subjects to the importance of being a good observer of children's gross motor behavior. Training included instructions to observe carefully, watch for specific behaviors, and take notes whenever possible.

The findings, that parents who received further training improved their ability to evaluate children's gross motor abilities, support the value of extended opportunities to learn what to look for when watching their children. An extended knowledge base resulted in a significant change in mothers' perceptions, and approached significance in fathers' perceptions. This could suggest that time spent observing a child at an early age may reflect differences between mothers' and fathers' perceptions, as well the amount of time exposed to children at play.

As hypothesized, training did increase aspects of assessment. We can not be certain, however, which aspects of training caused the changes. Nor can it be ascertained what effect observational training had on perceptions in the absence of direct observation.

Furthermore, closer agreement between intervention parents and professional assessments could have resulted from more objective rather than subjective methods of judgement used by both, along with explicit definitions, and rules for scoring behaviors. These are more likely to reduce biases contributed by characteristics of the subjects, observers, or setting in which judgements were made. Ultimately,

questionnaire responses cannot supplant direct observations (Handen, et. al., 1987).

In evaluating the effect of observational training on subjective aspects of perception, some procedures could be subsumed under the term "observation". Therefore, comparison across studies could be difficult to make. However, in view of the significant results of this study, comparison with other studies remains a possibility.

The clearest conclusion to be drawn from these results is that parents and professionals can be in close agreement if they observe the same behavior characteristics i.e., behavioral components of gross motor skills.

This is particularly relevant with regard to information held in common by both professionals and parents. As reported by Hunt and Paraskevopoulos (1980), the methods used by each in perceiving or judging attributes about children may be responsible for any differences in accuracy of assessment.

In the final analysis, the results of this study consistently demonstrate that parents tend to overestimate their children's abilities relative to professionals' judgements. Over time, parents who receive training associated with methods or instruments utilized by professionals displayed more accurate and realistic reporting of their children's abilities.

On a practical level, the findings presented here indicate that parent training should be expanded from its exclusive concentration on range of agreement between professional assessment to include components that more directly focus on increasing accuracy.

In general, the findings are promising in their support of the need to share information between parents and professionals relative to children's current level of functioning. The results of this study also suggest that observational training is a useful technique in changing parent's perceptions related to their children's gross motor abilities.

CHAPTER 5

SUMMARY, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

The purpose of this study was to determine the extent to which parents and professionals were in agreement prior to and following intervention regarding their judgement of the gross motor abilities of the parents' preschool children.

This chapter is divided into the following: (a) summary of procedure, (b) summary of findings, (c) implications, and (d) recommendations for future research.

Summary of Procedures

Fifty-six parents and twenty-eight children participated in the study. Each child was tested individually on twelve gross motor skills. The instrument used to test for these skills was the Test of Gross Motor Development (Ulrich, 1985). The test was administered by a trained professional, with another trained observer to assess the child's performance.

To obtain a measure of each parent's perception of their child's gross motor abilities, parents responded to a questionnaire which was constructed to parallel the content of the TGMD. Parents were asked to rate their child's abilities on the same twelve skills that their child was simultaneously being tested on in another location (Appendix D).

Mothers and fathers were asked not to discuss their thoughts with each other during this time. The investigator was present to insure that interaction between parents did not occur. The investigator also offered basic explanations of each skill. The same information was given to all parents in order not to bias differences in their understanding of any skills, beyond previously established knowledge of the skills.

Following initial questionnaire sessions, all parent pairs (mother-father family pairs) were assigned to either an intervention or non-intervention group. Intervention group parents attended two - ninety minute training sessions on how to observe children's gross motor skills. Each small group session consisted of a video-taped presentation of "other" children performing the same gross motor skills that they responded to in the first questionnaire. These sessions were one week apart.

One week following intervention training, both groups of parents were re-scheduled for a second questionnaire session similar to the first, except that children were not tested again. Parents were asked to reveal what they now believed to be their children's abilities on the same gross motor skills. Pre-intervention professional assessments were used as a basis for continued comparison.

All data prior to intervention were analyzed by means of paired-t tests. Parents' and professional scores were converted to standard scores for purpose of comparison. Paired-t tests were used, also, for reporting changes within groups over time.

Additional analyses were obtained through Student t-tests. Data analyzed in this manner were associated with determining differences

between intervention and non-intervention groups, following observational training intervention.

All statistical procedures were completed utilizing the MacIntosh Statview software package. Significance for all analyses was established at an alpha level of .10.

Summary of Findings

Based on the scope and limitations of this study, the following findings emerged:

1. There were statistically significant differences between parents' pre -intervention perceptions of their children's gross motor abilities and professional assessment of the same children's gross motor abilities as measured by Ulrich's Test of Gross Motor Development.
2. There were statistically significant differences between pre and post perceptions following observational training intervention. Parents who received video-taped observational training demonstrated closer agreement with professional assessment of their children.
3. There were also statistically significant differences between the perceptions of intervention parents as compared to non-intervention parents following observational training.

Implications

In general, the results of this investigation are a promising application of the study of how parents perceive their children's gross motor abilities relative to professional assessment of the same children.

The hypothesis, that parents' perceptions of their children's gross motor abilities would be similar to assessments made by a motor development professional, was not confirmed. The study substantiates other research which suggests that significant differences exist between parents' and professionals' judgements.

Although the results show fairly consistent disagreement between parents and professionals, it must be noted that the results of the present study do not address the question of the validity of either the parents' or professionals' assessments.

Although a child is assumed, by either or both parents, to have a basic skill; the child could actually lack the skill. Either or both parents might not have had the opportunity to observe the skill. In summary, the agreement of parents and professionals must be viewed with caution; their agreement does not ensure the accuracy of the judgements being made.

The study also demonstrated that training can influence parents' perceptions of their children's gross motor abilities. Furthermore, statistically significant differences were found between parents who received training and those who did not.

Training instructions, to focus on a set of behaviors that a parent would normally not attend to, do not necessarily mitigate his or her

perception that a performance is good or poor. The only evidence, to suggest that the instructions had indeed shifted parents' attention to appropriate behavioral aspects, is the extension of their observational knowledge to the evaluation of children other than their own. The present study did not address this question.

With respect to the training format, it should be kept in mind that intervention parents were shown videotapes of other children, never of their own. This fact, in itself, would minimize any opportunity for parents to have received professional feedback that may have altered perception of their own child's motor performance.

Recommendations for Future Research

The completion of this study highlights other areas of concern for future research regarding parents' perceptions of their children's abilities and interventions used in training parents to become better observers of their children's performances. The following recommendations are made:

1. The design of future studies should analyze specific components of motor abilities contained within the testing instrument. This may help to explain parent and professional differences with respect to specific motor abilities.
2. If mothers are more accurate observers of their child's performance than fathers, then further research should attempt to determine whether a mother exerts a greater influence on the course of the child's motor development than a father.

3. Perhaps even more important is the need to evaluate parents' perceptions over time in order to ascertain any changes in the absence of/and maintenance of information following observational training.

4. The present research could be replicated and extended by using a more diversified population of parents. Parents of handicapped children should be considered as well. This would allow for opportunities to determine differences in parents' perceptions resulting from the presence of more "obvious" physical or cognitive attributes, or deficits.

5. Further studies should be conducted to determine what kind of instruments or information can be shared with parents so that they will have a better understanding and knowledge base of children's gross motor abilities.

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APPENDICES

APPENDIX A

HUMAN SUBJECTS COMMITTEE LETTER

OREGON STATE UNIVERSITY
APPLICATION FOR APPROVAL OF THE HUMAN SUBJECTS BOARD

Principal Investigator Dr. John M. Dunn

Department Phys. Educ./Human Dev. & Fam. Studies Phone 754-3222

Project Title Parents' Perceptions of their Preschool Childrens' Gross Motor Abilities Before and Following Videotaped Observational Training Feedback

Present or Proposed Source of Funding Personal-Student

Type of Project X Graduate Student Thesis Project
(Student's name Michael Groner)

I. METHODS AND PROCEDURES

A. Preschool children age 4 (developmentally handicapped and nonhandicapped) and their parents will be allowed to voluntarily participate in this study. These subjects will be obtained through either the Oregon State University preschool, of the Old Mill School located in Corvallis.

B. Parents with their children who elect to participate will be given a written informed consent statement which details what is expected if they decide to participate.

C. Subjects selected will be scheduled for observation (children) and questioning (parents) at times during evening or weekend hours as convenient as possible for all involved.

D. During the pre-training and post-training period parents will be questioned to determine perceptions of their child's motor abilities as well as those of other children (see copy of questionnaire).

E. During the pre-training period ,only, children will have their gross motor ability assessed using the Test of Gross Motor Ability (see copy of test). The test will be administered by a qualified person who has extensive experience in Physical Education.

F. Between the pre-training and post-training periods some parents will receive special training through videotape feedback on how to observe children's motor skills.

II. RISKS AND BENEFITS

A. During the tests which measure gross motor ability each child will be asked to perform 12 simple tasks (e.g. running, throwing a ball) which require minimal effort and present minimal risk. The benefit to some children is that they may become more familiar with a skill which they were previously less familiar or found more difficult.

B. Child assessments will be administered by a trained specialist. They will offer a relaxed and enjoyable environment for the children.
C. All parents including those not participating in observational training should benefit from any positive outcome resulting from the training intervention which is ultimately intended to contribute to parent education in general.
D. Results of study as well as individual assessments of their child will be shared with each parent following termination of the study.

III. Subjects will be identified by name when data are collected but will be referred to as Parent 1-a (mother), 1-b (father), child 1, or training parents or non-training parents for puposes of reporting results. These procedures will serve to preserve anonymity.

Signed Date 4/12/89

Principal Investigator

OREGON STATE UNIVERSITY

Committee for the Protection of Human Subjects

Chairman's Summary of Review

Title: Parents' perceptions of their preschool children's gross motor abilities before and following videotaped observational training feedback

Program Director: John Dunn

Recommendation:

XX Approval*

____ Provisional Approval

____ Disapproval

____ No action

*The informed consent forms obtained from each subject need to be retained for the long term. Archives Division of the OSU Department of Budgets and Personnel Service is willing to receive and archive these on microfilm. At present at least, this can be done without charge to the research project. Please have the forms retained in archives as well as in your files.

Remarks: Mr. Groner's response to the Chair's concerns about videotaping is attached.

Date: April 27, 1989

Signature Redacted for Privacy

If the recommendation of the committee is for provisional approval or disapproval, the program director should resubmit the application with the necessary corrections within one month.

April 26, 1989

To: Dr. Lorraine T. Miller, Chair -
Committee for the Protection of Human Subjects

From: Michael D. Groner

Re: Amendment and Clarification to Thesis Project Titled: Parents' Perceptions of Their Preschool Childrens' Gross Motor Abilities Before and Following Videotaped Observational Training

Dear Dr. Miller,

As per your "Summary of Review and our recent telephone conversation, I am submitting this information for the purpose of clarifying the use of videotaping as part of my project. At no time during the course of this project will children or parents who are actively participating in the study be videotaped. All videotaping has or will be conducted with only children within families whom I am closely associated with i.e., friends, relatives, not directly involved in this study.

The use of these tapes do not extend or will they be used beyond the limits of this sstudy. They are to be used primarily for observational training sessions with the parents.

I hope that this explanation is sufficient for final approval to advance with the present project. Thank you for your attention to this matter.

Respectfully Yours,

Michael D. Groner

cc. Graduate Research Office

Dr. John M. Dunn

APPENDIX B

INFORMED CONSENT

Informed Consent Form
Parents' Perceptions of Their Preschool Children's Gross Motor Abilities

Principal Investigator: Dr. John M. Dunn

Before agreeing to participate in this study, it is important that the following explanation of the proposed procedures be read and understood. This explanation describes the purpose, procedures, benefits, risks and discomforts, and precautions of the study. Alternative procedures and the right to withdraw from the study at any time are discussed. Parents should understand that no guarantee or assurance can be made as to the results. Refusal to participate in this study will not influence treatment or services for your child.

1. Procedure

There will be two questionnaire sessions which will last about one half hour. There will also be one child assessment which will also last about one half hour. The first questionnaire session and the child assessment will be held at the same time. Additionally, some parents but not all will be asked to take part in two ninety minute information workshops. These will occur over two consecutive weekends between the two questionnaire sessions.

2. Risk

There is nothing harmful about the questionnaire sessions or the assessment of your child . Sometimes people feel some discomfort in discussing personal matters, however the questions asked should not present any discomfort. The tasks that your child will be asked to perform for assessment are safe, simple, and should be fun for your child.

4. Confidentiality

Your questionnaire responses and child's assessment will be kept confidential. Only members of the research team will have access to this information. Results of this study will be presented so that there is no identifying information of individuals.

5. Availability of information

Any questions that we may have about this study will be answered by:

Michael Groner: 754-3221 or 757-9677 or
Dr. John M. Dunn: 754-3256

6. The Right to Withdraw

We are free to withdraw from this study at any time. Should we wish to withdraw, we have been assured that withdrawal will not affect our child's educational opportunity. There are no consequences should we withdraw from this study.

7. Agreement To Participate

By signing this form, we acknowledge having read the informed consent form and and agree to participate in this study, and to allow our child to participate as well.

Parent_____Date_____

Parent_____Date_____

APPENDIX C

LETTER OF INTRODUCTION

April 17, 1989

Dear Parent:

My name is Michael Groner. I am a Graduate Teaching Assistant and Doctoral student in the Department of Physical Education, Oregon State University. I am interested in finding out about how parents look at their children's abilities. Because this interest also involves the Human Development and Family Studies Department at Oregon State, I have been granted permission to invite parents and children attending the university preschool to participate in my project.

In order to successfully conduct this study, I need parents who are willing to fill out a questionnaire and who are willing to allow their child to be assessed on some very basic tasks. This study will begin within the next two weeks and continue for four weeks thereafter. There will be two parent questionnaire sessions (each a half hour). Your child will be assessed once at a time which coincides with your first questionnaire session.

Both parents are required for this study. If you both think you would be willing to participate along with your child, please put your name, address, and phone number on the enclosed postcard and put it in the mailbox or return to your immediate resource person at the school.

Your answers to the questionnaire and your child's assessment will be kept confidential. All results will be reported as group data. Your name will not be used in any way other than to contact your regarding your scheduled day and time for the questionnaire sessions. You may withdraw from the study at any time. All goals, procedures, and results of the study will be available to you upon request after participation in the study.

If you have any questions about the study please call me at one of these numbers:

Michael Groner: 754-3221
757-9877

Please return the consent form and post card by Friday April 21, 1989, or as soon after that as possible. Thank You!

Sincerely,

Michael D. Groner

APPENDIX D

PARENT PRE DATA QUESTIONNAIRE

PARENT PERCEPTION QUESTIONNAIRE

Parent Responding-Mother /Father Child Age-3/4 Child Sex-M/F

Definition of Gross Motor "the skillful use of the total body in large muscle activities that require coordination of movement of a number of body segments (parts) simultaneously ". - Williams (1983)

With the above definition in mind, please respond to the following questions relative to your child's gross motor abilities.

G-1 Describe your child's general gross motor ability .

1 poor
2 fair
3 good
4 advanced

G-2 Describe your child's general gross motor ability as it compares to other children his/her own age.

1 poor
2 fair
3 good
4 advanced

LOCOMOTOR SKILLS:

L-I RUN

1a. Describe the degree of success your child has in running. (Circle one number).

1 no success
2 slight success
3 moderate success
4 considerable success

1b. Compared to other children within his/her age group would you say that your child runs better, about as well as, or not as well as others? (Circle one number)

1 not as well as others
2 about as well
3 better than others

1c. At what age was your child first reasonably successful at performing this skill?

_ _ _ _ _AGE

1d. Do you believe this skill is appropriate for your child's age group? (circle one number)

1 YES
2 NO

1e. At what age do you believe that most children can successfully perform this skill?

_ _ _ _ _AGE

1f. Is this skill performed most often in your child's age group by boys, girls or both about equally? (Circle one number)

1 BOYS
2 GIRLS
3 BOTH ABOUT EQUAL
4 NOT PERFORMED BY THIS AGE GROUP

LOCOMOTOR SKILLS

L - 2 GALLOP

1a. Describe the degree of success your child has in galloping. (Circle one number).

1 no success
2 slight success
3 moderate success
4 considerable success

1b. Compared to other children within his/her age group would you say that your child gallops better, about as well as, or not as well as others? (Circle one number)

1 not as well as others
2 about as well
3 better than others

1c. At what age was your child first reasonably successful at performing this skill?

_ _ _ _ _AGE

1d. Do you believe this skill is appropriate for your child's age group? (circle one number)

1 YES
2 NO

1e. At what age do you believe that most children can successfully perform this skill?

_ _ _ _ _AGE

1f. Is this skill performed most often in your child's age group by boys, girls or both about equally? (Circle one number)

1 BOYS
2 GIRLS
3 BOTH ABOUT EQUAL
4 NOT PERFORMED BY THIS AGE GROUP

LOCOMOTOR SKILLS:

L-3 HOP

1a. Describe the degree of success your child has in hopping. (Circle one number).

1 no success
2 slight success
3 moderate success
4 considerable success

1b. Compared to other children within his/her age group would you say that your child hops better, about as well as, or not as well as others? (Circle one number)

1 not as well as others
2 about as well
3 better than others

1c. At what age was your child first reasonably successful at performing this skill?

_ _ _ _ _AGE

1d. Do you believe this skill is appropriate for your child's age group? (circle one number)

1 YES
2 NO

1e. At what age do you believe that most children can successfully perform this skill?

_ _ _ _ _AGE

1f. Is this skill performed most often in your child's age group by boys, girls or both about equally? (Circle one number)

1 BOYS
2 GIRLS
3 BOTH ABOUT EQUAL
4 NOT PERFORMED BY THIS AGE GROUP

LOCOMOTOR SKILLS:

L-4 LEAP

1a. Describe the degree of success your child has in leaping. (Circle one number).

1 no success
2 slight success
3 moderate success
4 considerable success

1b. Compared to other children within his/her age group would you say that your child leaps better, about as well as, or not as well as others? (Circle one number)

1 not as well as others
2 about as well
3 better than others

1c. At what age was your child first reasonably successful at performing this skill?

_ _ _ _ _AGE

1d. Do you believe this skill is appropriate for your child's age group? (circle one number)

1 YES
2 NO

1e. At what age do you believe that most children can successfully perform this skill?

_ _ _ _ _AGE

1f. Is this skill performed most often in your child's age group by boys, girls or both about equally? (Circle one number)

1 BOYS
2 GIRLS
3 BOTH ABOUT EQUAL
4 NOT PERFORMED BY THIS AGE GROUP

LOCOMOTOR SKILS:

L-5 JUMP

1a. Describe the degree of success your child has jumping. (Circle one number).

1 no success
2 slight success
3 moderate success
4 considerable success

1b. Compared to other children within his/her age group would you say that your child jumps better, about as well as, or not as well as others? (Circle one number)

1 not as well as others
2 about as well
3 better than others

1c. At what age was your child first reasonably successful at performing this skill?

_ _ _ _ _AGE

1d. Do you believe this skill is appropriate for your child's age group? (circle one number)

1 YES
2 NO

1e. At what age do you believe that most children can successfully perform this skill?

_ _ _ _ _AGE

1f. Is this skill performed most often in your child's age group by boys, girls or both about equally? (Circle one number)

1 BOYS
2 GIRLS
3 BOTH ABOUT EQUAL
4 NOT PERFORMED BY THIS AGE GROUP

LOCOMOTOR SKILLS:

L-6 SKIP

1a. Describe the degree of success your child has in skipping. (Circle one number).

1 no success
2 slight success
3 moderate success
4 considerable success

1b. Compared to other children within his/her age group would you say that your child skips better, about as well as, or not as well as others? (Circle one number)

1 not as well as others
2 about as well
3 better than others

1c. At what age was your child first reasonably successful at performing this skill?

_ _ _ _ _AGE

1d. Do you believe this skill is appropriate for your child's age group? (circle one number)

1 YES
2 NO

1e. At what age do you believe that most children can successfully perform this skill?

_ _ _ _ _AGE

1f. Is this skill performed most often in your child's age group by boys, girls or both about equally? (Circle one number)

1 BOYS
2 GIRLS
3 BOTH ABOUT EQUAL
4 NOT PERFORMED BY THIS AGE GROUP

LOCOMOTOR SKILLS:

L-7 SLIDE

1a. Describe the degree of success your child has in sliding. (Circle one number).

1 no success
2 slight success
3 moderate success
4 considerable success

1b. Compared to other children within his/her age group would you say that your child slides better, about as well as, or not as well as others? (Circle one number)

1 not as well as others
2 about as well
3 better than others

1c. At what age was your child first reasonably successful at performing this skill?

_ _ _ _ _AGE

1d. Do you believe this skill is appropriate for your child's age group? (circle one number)

1 YES
2 NO

1e. At what age do you believe that most children can successfully perform this skill?

_ _ _ _ _AGE

1f. Is this skill performed most often in your child's age group by boys, girls or both about equally? (Circle one number)

1 BOYS
2 GIRLS
3 BOTH ABOUT EQUAL
4 NOT PERFORMED BY THIS AGE GROUP

OBJECT-CONTROL:

OC-1 TWO-HAND STRIKE

1a. Describe the degree of success your child has in striking. (Circle one number).

1 no success
2 slight success
3 moderate success
4 considerable success

1b. Compared to other children within his/her age group would you say that your child strikes better, about as well as, or not as well as others? (Circle one number)

1 not as well as others
2 about as well
3 better than others

1c. At what age was your child first reasonably successful at performing this skill?

_ _ _ _ _AGE

1d. Do you believe this skill is appropriate for your child's age group? (circle one number)

1 YES
2 NO

1e. At what age do you believe that most children can successfully perform this skill?

_ _ _ _ _AGE

1f. Is this skill performed most often in your child's age group by boys, girls or both about equally? (Circle one number)

1 BOYS
2 GIRLS
3 BOTH ABOUT EQUAL
4 NOT PERFORMED BY THIS AGE GROUP

OBJECT-CONTROL:

OC-2 STATIONARY BOUNCE

1a. Describe the degree of success your child has in bouncing a ball (Circle one number).

1 no success
2 slight success
3 moderate success
4 considerable success

1b. Compared to other children within his/her age group would you say that your child bounces a ball better, about as well as, or not as well as others? (Circle one number)

1 not as well as others
2 about as well
3 better than others

1c. At what age was your child first reasonably successful at performing this skill?

_ _ _ _ _AGE

1d. Do you believe this skill is appropriate for your child's age group? (circle one number)

1 YES
2 NO

1e. At what age do you believe that most children can successfully perform this skill?

_ _ _ _ _AGE

1f. Is this skill performed most often in your child's age group by boys, girls or both about equally? (Circle one number)

1 BOYS
2 GIRLS
3 BOTH ABOUT EQUAL
4 NOT PERFORMED BY THIS AGE GROUP

OBJECT-CONTROL

OC-3 CATCH

1a. Describe the degree of success your child has in catching. (Circle one number).

1 no success
2 slight success
3 moderate success
4 considerable success

1b. Compared to other children within his/her age group would you say that your child catches better, about as well as, or not as well as others? (Circle one number)

1 not as well as others
2 about as well
3 better than others

1c. At what age was your child first reasonably successful at performing this skill?

_ _ _ _ _AGE

1d. Do you believe this skill is appropriate for your child's age group? (circle one number)

1 YES
2 NO

1e. At what age do you believe that most children can successfully perform this skill?

_ _ _ _ _AGE

1f. Is this skill performed most often in your child's age group by boys, girls or both about equally? (Circle one number)

1 BOYS
2 GIRLS
3 BOTH ABOUT EQUAL
4 NOT PERFORMED BY THIS AGE GROUP

OBJECT-CONTROL

OC-4 KICK

1a. Describe the degree of success your child has in kicking. (Circle one number).

1 no success
2 slight success
3 moderate success
4 considerable success

1b. Compared to other children within his/her age group would you say that your child kicks better, about as well as, or not as well as others? (Circle one number)

1 not as well as others
2 about as well
3 better than others

1c. At what age was your child first reasonably successful at performing this skill?

_ _ _ _ _AGE

1d. Do you believe this skill is appropriate for your child's age group? (circle one number)

1 YES
2 NO

1e. At what age do you believe that most children can successfully perform this skill?

_ _ _ _ _AGE

1f. Is this skill performed most often in your child's age group by boys, girls or both about equally? (Circle one number)

1 BOYS
2 GIRLS
3 BOTH ABOUT EQUAL
4 NOT PERFORMED BY THIS AGE GROUP

OBJECT-CONTROL:

OC-5 OVERHAND THROW

1a. Describe the degree of success your child has in throwing. (Circle one number).

1 no success
2 slight success
3 moderate success
4 considerable success

1b. Compared to other children within his/her age group would you say that your child throws better, about as well as, or not as well as others? (Circle one number)

1 not as well as others
2 about as well
3 better than others

1c. At what age was your child first reasonably successful at performing this skill?

_ _ _ _ _AGE

1d. Do you believe this skill is appropriate for your child's age group? (circle one number)

1 YES
2 NO

1e. At what age do you believe that most children can successfully perform this skill?

_ _ _ _ _AGE

1f. Is this skill performed most often in your child's age group by boys, girls or both about equally? (Circle one number)

1 BOYS
2 GIRLS
3 BOTH ABOUT EQUAL
4 NOT PERFORMED BY THIS AGE GROUP

Demographic Profile

Age_____Sex: Female_____Male_____
Race: White_____Black_____Other_____
Approximate yearly income (yourself only) check one:

_____Less than $9,999
_____$10,000 - 14,999
_____$15,000 - 19,999
_____$20,000 - 29,999
_____$30,000 - 39,999
_____$40,000 - 49,999
_____Over $50,000

How many years have you completed in school?
Check one:

_____8 years or less
_____completed high school
_____1 to 3 years of college
_____completed 4 years of college (Bachelors degree)
_____completed technical or trade school
_____completed some graduate work
_____completed a graduate degree

How many children do you have in your family unit? _____
What are their ages and sex? Age_____Sex_____
Age_____Sex_____
Age_____Sex_____
Age_____Sex_____
Age_____Sex_____

Are you a parent of a handicapped child?_____YES_____NO
How old is your child?_____years_____months
What sex is this child?_____male_____female

Thank you very much for completing this questionnaire! If you would like a summary of the results of this study when completed, send your name and address on a postcard, under separate cover to:

Michael Groner
Physical Education Department
Langton Hall
Oregon State University
Corvallis, Or. 97330

APPENDIX E

PARENT POST DATA QUESTIONNAIRE

PARENT POST-DATA QUESTIONNAIRE

LOCOMOTOR SKILLS:
L-I RUN

1a. Describe the degree of success your child has in running. (Circle one number).

1 no success
2 slight success
3 moderate success
4 considerable success

1b. Compared to other children within his/her age group would you say that your child runs better, about as well as, or not as well as others? (Circle one number)

1 not as well as others
2 about as well
3 better than others

1c. Describe the degree of success that the child in the videotape has in running. (Circle one number)

1 NO SUCCESS
2 SLIGHT SUCCESS
3 MODERATE SUCCESS
4 CONSIDERABLE SUCCESS

1d. Compared to the child on the videotape would you say that your child runs better, about as well as, or not as well as? (Circle one number)

1 NOT AS WELL
2 ABOUT AS WELL
3 BETTER THAN

L-2 GALLOP

1a. Describe the degree of success your child has in galloping. (Circle one number).

1 no success
2 slight success
3 moderate success
4 considerable success

1b. Compared to other children within his/her age group would you say that your child gallops better, about as well as, or not as well as others? (Circle one number)

1 not as well as others
2 about as well
3 better than others

1c. Describe the degree of success that the child in the videotape has in galloping. (Circle one number)

1 NO SUCCESS
2 SLIGHT SUCCESS
3 MODERATE SUCCESS
4 CONSIDERABLE SUCCESS

1d. Compared to the child on the videotape would you say that your child gallops better, about as well as, or not as well as? (Circle one number)

1 NOT AS WELL
2 ABOUT AS WELL
3 BETTER THAN

L-3 HOP

1a. Describe the degree of success your child has in hopping. (Circle one number).

1 no success
2 slight success
3 moderate success
4 considerable success

1b. Compared to other children within his/her age group would you say that your child hops better, about as well as, or not as well as others? (Circle one number)

1 not as well as others
2 about as well
3 better than others

1c. Describe the degree of success that the child in the videotape has in hopping. (Circle one number)

1 NO SUCCESS
2 SLIGHT SUCCESS
3 MODERATE SUCCESS
4 CONSIDERABLE SUCCESS

1d. Compared to the child on the videotape would you say that your child hops better, about as well as, or not as well as? (Circle one number)

1 NOT AS WELL
2 ABOUT AS WELL
3 BETTER THAN

L-4 LEAP

1a. Describe the degree of success your child has in leaping. (Circle one number).

1 no success
2 slight success
3 moderate success
4 considerable success

1b. Compared to other children within his/her age group would you say that your child leaps better, about as well as, or not as well as others? (Circle one number)

1 not as well as others
2 about as well
3 better than others

1c. Describe the degree of success that the child in the videotape has in leaping. (Circle one number)

1 NO SUCCESS
2 SLIGHT SUCCESS
3 MODERATE SUCCESS
4 CONSIDERABLE SUCCESS

1d. Compared to the child on the videotape would you say that your child leaps better, about as well as, or not as well as? (Circle one number)

1 NOT AS WELL
2 ABOUT AS WELL
3 BETTER THAN

L-5 JUMP

1a. Describe the degree of success your child has in jumping. (Circle one number).

1 no success
2 slight success
3 moderate success
4 considerable success

1b. Compared to other children within his/her age group would you say that your child jumps better, about as well as, or not as well as others? (Circle one number)

1 not as well as others
2 about as well
3 better than others

1c. Describe the degree of success that the child in the videotape has in jumping. (Circle one number)

1 NO SUCCESS
2 SLIGHT SUCCESS
3 MODERATE SUCCESS
4 CONSIDERABLE SUCCESS

1d. Compared to the child on the videotape would you say that your child jumps better, about as well as, or not as well as? (Circle one number)

1 NOT AS WELL
2 ABOUT AS WELL
3 BETTER THAN

L-6 SKIP

1a. Describe the degree of success your child has in skipping. (Circle one number).

1 no success
2 slight success
3 moderate success
4 considerable success

1b. Compared to other children within his/her age group would you say that your child skips better, about as well as, or not as well as others? (Circle one number)

1 not as well as others
2 about as well
3 better than others

1c. Describe the degree of success that the child in the videotape has in skipping. (Circle one number)

1 NO SUCCESS
2 SLIGHT SUCCESS
3 MODERATE SUCCESS
4 CONSIDERABLE SUCCESS

1d. Compared to the child on the videotape would you say that your child skips better, about as well as, or not as well as? (Circle one number)

1 NOT AS WELL
2 ABOUT AS WELL
3 BETTER THAN

L-7 SLIDE

1a. Describe the degree of success your child has in sliding. (Circle one number).

1 no success
2 slight success
3 moderate success
4 considerable success

1b. Compared to other children within his/her age group would you say that your child slides better, about as well as, or not as well as others? (Circle one number)

1 not as well as others
2 about as well
3 better than others

1c. Describe the degree of success that the child in the videotape has in sliding. (Circle one number)

1 NO SUCCESS
2 SLIGHT SUCCESS
3 MODERATE SUCCESS
4 CONSIDERABLE SUCCESS

1d. Compared to the child on the videotape would you say that your child slides better, about as well as, or not as well as? (Circle one number)

1 NOT AS WELL
2 ABOUT AS WELL
3 BETTER THAN

OBJECT-CONTROL

OC-1 TWO-HAND-STRIKE

1a. Describe the degree of success your child has in striking. (Circle one number).

1 no success
2 slight success
3 moderate success
4 considerable success

1b. Compared to other children within his/her age group would you say that your child strikes better, about as well as, or not as well as others? (Circle one number)

1 not as well as others
2 about as well
3 better than others

1c. Describe the degree of success that the child in the videotape has in striking. (Circle one number)

1 NO SUCCESS
2 SLIGHT SUCCESS
3 MODERATE SUCCESS
4 CONSIDERABLE SUCCESS

1d. Compared to the child on the videotape would you say that your child strikes better, about as well as, or not as well as? (Circle one number)

1 NOT AS WELL
2 ABOUT AS WELL
3 BETTER THAN

OC-2 STATIONARY BOUNCE

1a. Describe the degree of success your child has in bouncing. (Circle one number).

1 no success
2 slight success
3 moderate success
4 considerable success

1b. Compared to other children within his/her age group would you say that your child bounces better, about as well as, or not as well as others? (Circle one number)

1 not as well as others
2 about as well
3 better than others

1c. Describe the degree of success that the child in the videotape has in bouncing. (Circle one number)

1 NO SUCCESS
2 SLIGHT SUCCESS
3 MODERATE SUCCESS
4 CONSIDERABLE SUCCESS

1d. Compared to the child on the videotape would you say that your child bounces better, about as well as, or not as well as? (Circle one number)

1 NOT AS WELL
2 ABOUT AS WELL
3 BETTER THAN

OC-3 CATCH

1a. Describe the degree of success your child has in catching. (Circle one number).

1 no success
2 slight success
3 moderate success
4 considerable success

1b. Compared to other children within his/her age group would you say that your child catches better, about as well as, or not as well as others? (Circle one number)

1 not as well as others
2 about as well
3 better than others

1c. Describe the degree of success that the child in the videotape has in catching. (Circle one number)

1 NO SUCCESS
2 SLIGHT SUCCESS
3 MODERATE SUCCESS
4 CONSIDERABLE SUCCESS

1d. Compared to the child on the videotape would you say that your child catches better, about as well as, or not as well as? (Circle one number)

1 NOT AS WELL
2 ABOUT AS WELL
3 BETTER THAN

OC-4 KICK

1a. Describe the degree of success your child has in kicking. (Circle one number).

1 no success
2 slight success
3 moderate success
4 considerable success

1b. Compared to other children within his/her age group would you say that your child catches better, about as well as, or not as well as others? (Circle one number)

1 not as well as others
2 about as well
3 better than others

1c. Describe the degree of success that the child in the videotape has in kicking. (Circle one number)

1 NO SUCCESS
2 SLIGHT SUCCESS
3 MODERATE SUCCESS
4 CONSIDERABLE SUCCESS

1d. Compared to the child on the videotape would you say that your child kicks better, about as well as, or not as well as? (Circle one number)

1 NOT AS WELL
2 ABOUT AS WELL
3 BETTER THAN

OC-5 OVERHAND THROW

1a. Describe the degree of success your child has in throwing. (Circle one number).

1 no success
2 slight success
3 moderate success
4 considerable success

1b. Compared to other children within his/her age group would you say that your child throws better, about as well as, or not as well as others? (Circle one number)

1 not as well as others
2 about as well
3 better than others

1c. Describe the degree of success that the child in the videotape has in throwing. (Circle one number)

1 NO SUCCESS
2 SLIGHT SUCCESS
3 MODERATE SUCCESS
4 CONSIDERABLE SUCCESS

1d. Compared to the child on the videotape would you say that your child throws better, about as well as, or not as well as? (Circle one number)

1 NOT AS WELL
2 ABOUT AS WELL
3 BETTER THAN

APPENDIX F

TGMD PERFORMANCE RECORD FORM

LOCOMOTOR SKILLS

Skill	Equipment	Directions	Performance Criteria	1st	2nd
RUN	50 feet of clear space, colored tape, chalk or other marking device	Mark off two lines 50 feet apart Instruct student to "run fast" from one line to the other	1. Brief period where both feet are off the ground 2. Arms in opposition to legs, elbows bent 3. Foot placement near or on a line (not flat footed) 4. Nonsupport leg bent approximately 90 degrees (close to buttocks)		
GALLOP	A minimum of 30 feet of clear space	Mark off two lines 30 feet apart Tell student to gallop from one line to the other three times Tell student to gallop leading with one foot and then the other	1. A step forward with the lead foot followed by a step with the trailing foot to a position adjacent to or behind the lead foot 2. Brief period where both feet are off the ground 3. Arms bent and lifted to waist level 4. Able to lead with the right and left foot		
HOP	A minimum of 15 feet of clear space	Ask student to hop 3 times, first on one foot and then on the other	1. Foot of nonsupport leg is bent and carried in back of the body 2. Nonsupport leg swings in pendular fashion to produce force 3. Arms bent at elbows and swing forward on take off 4. Able to hop on the right and left foot		
LEAP	A minimum of 30 feet of clear space	Ask student to leap Tell him/her to take large steps leaping from one foot to the other	1. Take off on one foot and land on the opposite foot 2. A period where both feet are off the ground (longer than running) 3. Forward reach with arm opposite the lead foot		
HORIZONTAL JUMP	10 feet of clear space, tape or other marking devices	Mark off a starting line on the floor, mat, or carpet Have the student start behind the line Tell the student to "jump far"	1. Preparatory movement includes flexion of both knees with arms extended behind the body 2. Arms extend forcefully forward and upward, reaching full extension above head 3. Take off and land on both feet simultaneously 4. Arms are brought downward during landing		

LOCOMOTOR SKILLS

Skill	Equipment	Directions	Performance Criteria	1st	2nd
SKIP	A minimum of 30 feet of clear space, marking device	Mark off two lines 30 feet apart Tell the student to skip from one line to the other three times	1. A rhythmical repetition of the step-hop on alternate feet 2. Foot of nonsupport leg carried near surface during hop 3. Arms alternately moving in opposition to legs at about waist level		
SLIDE	A minimum of 30 feet of clear space, colored tape or other marking device	Mark off two lines 30 feet apart Tell the student to slide from one line to the other three times facing the same direction	1. Body turned sideways to desired direction of travel 2. A step sideways followed by a slide of the trailing foot to a point next to the lead foot 3. A short period where both feet are off the floor 4. Able to slide to the right and to the left side		
			LOCOMOTOR SKILLS SUBTEST SCORE		

OBJECT CONTROL SKILLS

Skill	Equipment	Directions	Performance Criteria	1st	2nd
TWO-HAND STRIKE	4-6 inch light-weight ball, plastic bat	Toss the ball softly to the student at about waist level Tell the student to hit the ball hard Only count those tosses that are between the student's waist and shoulders	1. Dominate hand grips bat above nondominant hand 2. Nondominant side of body faces the tosser (feet parallel) 3. Hip and spine rotation 4. Weight is transferred by stepping with front foot		
STATIONARY BOUNCE	8-10 inch playground ball, hard, flat surface (floor, pavement)	Tell the student to bounce the ball three times using one hand Make sure the ball is not underinflated Repeat 3 separate trials	1. Contact ball with one hand at about hip height 2. Pushes ball with fingers (not a slap) 3. Ball contacts floor in front of (or to the outside of) foot on the side of the hand being used		

OBJECT CONTROL SKILLS

Skill	Equipment	Directions	Performance Criteria	1st	2nd
CATCH	6-8 inch sponge ball, 15 feet of clear space, tape or other marking device	Mark off 2 lines 15 feet apart. Student stands on one line and the tosser on the other. Toss the ball underhand directly to student with a slight arc and tell him/her to "catch it with your hands." Only count those tosses that are between student's shoulders and waist.	1. Preparation phase where elbows are flexed and hands are in front of body 2. Arms extend in preparation for ball contact 3. Ball is caught and controlled by hands only 4. Elbows bend to absorb force		
KICK	8-10 inch plastic or slightly deflated playground ball, 30 feet of clear space, tape or other marking device	Mark off one line 30 feet away from a wall and one that is 20 feet from the wall. Place the ball on the line nearest the wall and tell the student to stand on the other line. Tell the student to kick the ball "hard" toward the wall.	1. Rapid continuous approach to the ball 2. The truck is inclined backward during ball contact 3. Forward swing of the arm opposite kicking leg 4. Following-through by hopping on nonkicking foot		
OVERHAND THROW	3 tennis balls, a wall, 25 feet of clear space	Tell student to throw the ball "hard" at the wall	1. A downward arc of the throwing arm initiates the windup 2. Rotation of hip and shoulder to a point where the nondominant side faces an imaginary target 3. Weight is transferred by stepping with the foot opposite the throwing hand 4. Following-through beyond ball release diagonally across body toward side opposite throwing arm		
			OBJECT CONTROL SKILLS SUBTEST SCORE		

APPENDIX G

RAW DATA

TGMD PERFORMANCE SUMMARY-RAW /STANDARD SCORES

CHILD	RUN R/S	GALLOP R/S	HOP R/S	LEAP R/S	JUMP R/S	SKIP R/S	SLIDE R/S	TOTAL R/S
1	4/12	2/6	2/6	3/12	2/6	1/4	2/6	16/52
2	4/12	2/6	0/0	2/8	3/9	2/8	1/3	14/46
3	4/12	3/9	2/6	3/12	3/9	3/12	1/3	19/63
4	4/12	2/6	2/6	1/4	0/0	0/0	2/6	11/34
5	4/12	2/6	2/6	3/12	2/6	2/8	1/3	16/51
6	3/9	3/9	2/6	3/12	3/9	3/12	3/9	20/66
7	4/12	3/9	3/9	3/12	2/6	0/0	1/3	16/51
8	4/12	3/9	0/0	3/12	2/6	1/4	3/9	16/52
9	4/12	2/6	3/9	3/12	3/9	1/4	2/6	18/58
10	3/9	0/0	3/9	1/4	2/6	0/0	0/0	9/28
11	3/9	1/3	1/3	2/8	2/6	2/8	0/0	11/37
12	4/12	4/12	3/9	3/12	3/9	3/12	1/3	21/69
13	4/12	2/6	4/12	3/12	4/12	1/4	3/9	21/67
14	4/12	2/6	0/0	0/0	1/3	0/0	0/0	7/21
15	4/12	3/9	0/0	2/8	2/6	1/4	3/9	15/48
16	4/12	1/3	1/3	1/4	3/9	0/0	2/6	12/37
17	3/9	4/12	3/9	1/4	3/9	0/0	4/12	18/55
18	4/12	3/9	4/12	3/12	4/12	3/12	3/9	24/78
19	4/12	3/9	3/9	2/8	1/3	0/0	4/12	17/53
20	3/9	3/9	1/3	3/12	2/6	0/0	3/9	15/48
21	4/12	4/12	3/9	3/12	3/9	0/0	4/12	21/66
22	4/12	2/6	0/0	3/12	1/3	0/0	1/3	11/36
23	3/9	3/9	4/12	3/12	3/9	2/8	3/9	21/68
24	4/12	4/12	4/12	3/12	2/6	3/12	4/12	24/78
25	4/12	2/6	2/6	3/12	3/9	0/0	4/12	18/57
26	2/6	1/3	2/6	1/4	1/3	1/4	1/3	9/29
27	4/12	2/6	2/6	1/4	2/6	0/0	3/9	14/43
28	4/12	2/6	3/9	3/12	4/12	2/8	2/6	20/65
SUBTOTAL		LOCOMOTOR SKILLS						454/1456

Raw (R) Score Range = 0-4
Total Maximum Raw (R) Score = 45 (TGMD)

Standard (S) Score Range = 0-12
Total Maximum Standard Score = 144

CHILD	STRIKE R/S	BOUNCE R/S	CATCH R/S	KICK R/S	THROW R/S	TOTAL R/S
1	3/9	0/0	3/9	2/6	2/6	10/30
2	3/9	0/0	2/6	2/6	1/3	8/24
3	3/9	3/12	4/12	3/9	2/6	15/48
4	1/3	0/0	2/6	2/6	0/0	5/15
5	2/6	0/0	3/9	1/3	0/0	6/18
6	2/6	0/0	2/6	3/9	0/0	7/25
7	2/6	0/0	2/6	2/6	0/0	6/18
8	0/0	0/0	2/6	2/6	2/6	6/18
9	4/12	0/0	3/9	3/9	4/12	14/42
10	2/6	3/12	1/3	3/9	2/6	11/36
11	1/3	0/0	2/6	3/9	0/0	6/18
12	O/O	1/4	4/12	2/6	0/0	7/22
13	1/3	0/0	2/6	4/12	1/3	8/24
14	2/6	0/0	2/6	0/0	0/0	4/12
15	3/9	0/0	2/6	2/6	3/9	10/30
16	2/6	0/0	2/6	2/6	2/6	8/24
17	2/6	1/4	2/6	1/3	0/0	6/19
18	3/9	2/8	2/6	4/12	3/9	14/44
19	1/3	0/0	2/6	2/6	0/0	5/15
20	3/9	0/0	2/6	1/3	0/0	6/18
21	0/0	0/0	2/6	3/9	2/6	7/21
22	1/3	0/0	1/3	1/3	1/3	4/12
23	4/12	0/0	2/6	1/3	2/6	9/27
24	3/9	1/4	2/6	1/3	2/6	9/28
25	3/9	0/0	2/6	1/3	3/9	9/27
26	3/9	0/0	1/3	1/3	1/3	6/18
27	2/6	0/0	3/9	1/3	1/3	7/21
28	3/9	0/0	3/9	4/12	3/9	13/39
SUBTOTAL	OBJECT CONTROL					226/693
TOTAL						680/2149
MEAN						24.21/76.75

PARENT PRE-INTERVENTION PERCEPTIONS
MOTHERS' RAW SCORES/STANDARD SCORES

CHILD	RUN R/S	GALLOP R/S	HOP R/S	LEAP R/S	JUMP R/S	SKIP R/S	SLIDE R/S	TOTAL R/S
1	3/12	1/4	3/12	3/12	3/12	2/8	2/8	17/66
2	3/12	2/12	2/8	2/8	3/12	2/8	2/8	17/68
3	3/12	2/8	3/12	3/12	3/12	3/12	1/4	18/72
4	2/8	3/12	3/12	1/4	3/12	0/0	0/0	12/48
5	2/8	2/8	2/8	1/4	3/12	1/4	1/4	12/48
6	2/8	3/12	3/12	3/12	3/12	3/12	2/8	19/76
7	2/8	1/4	2/8	2/8	2/8	1/4	3/12	13/52
8	3/12	2/8	2/8	2/8	3/12	0/0	2/8	14/56
9	3/12	2/8	2/8	2/8	2/8	1/4	2/8	14/56
10	2/8	0/0	1/4	0/0	2/8	1/4	0/0	6/24
11	2/8	1/4	3/12	1/4	2/8	0/0	0/0	9/36
12	3/12	3/12	2/8	2/8	3/12	3/12	1/4	17/70
13	3/12	3/12	2/8	3/12	3/12	1/4	3/12	18/72
14	3/12	2/8	1/4	0/0	3/12	1/4	2/8	12/48
15	312	2/8	3/12	3/12	3/12	1/4	2/8	17/68
16	3/12	312	3/12	3/12	3/12	2/8	3/12	20/80
17	3/12	3/12	2/8	3/12	3/12	3/12	3/12	20/80
18	3/12	2/8	2/8	0/0	2/8	1/3	1/4	10/40
19	2/8	1/4	3/12	0/0	3/12	1/4	3/12	13/52
20	2/8	1/4	2/8	2/8	2/8	1/3	2/8	11/44
21	3/12	3/12	3/12	3/12	3/12	2/8	2/8	19/76
22	3/12	1/4	1/4	1/4	1/4	1/4	1/4	9/36
23	3/12	3/12	2/8	3/12	3/12	1/4	3/12	18/72
24	2/6	1/4	1/4	1/4	1/4	1/4	1/4	7/28
25	3/12	2/8	2/8	3/12	3/12	1/4	3/12	17/68
26	3/12	2/8	3/12	1/4	3/12	3/12	2/8	17/68
27	3/12	2/8	3/12	2/8	3/12	2/8	2/8	17/68
28	3/12	1/4	2/8	0/0	2/8	1/4	2/8	11/40
SUBTOTAL			LOCOMOTOR SKILLS					404/1612

Raw (R) Score Range = 0-3
Total Maximum Raw (R) Score = 36 (Questionnaire)

Standard (S) Score Range = 0-12
Total Maximum Raw (R) Score = 144

CHILD	STRIKE R/S	BOUNCE R/S	CATCH R/S	KICK R/S	THROW R/S	TOTAL R/S
1	1/4	2/8	2/8	2/8	2/8	9/36
2	3/12	1/4	2/8	3/12	3/12	15/48
3	3/12	3/12	2/8	3/12	3/12	14/56
4	1/4	3/12	1/4	3/12	0/0	8/32
5	0/0	1/4	3/12	2/8	2/8	8/32
6	1/4	2/8	2/8	2/8	2/8	9/36
7	0/0	2/8	1/4	1/4	2/8	6/24
8	1/4	2/8	1/4	3/12	3/12	10/40
9	2/8	2/8	2/8	3/12	3/12	12/48
10	0/0	2/8	0/0	2/8	1/4	5/20
11	1/4	1/4	1/4	1/4	1/4	5/20
12	0/0	3/12	1/4	2/8	2/8	8/32
13	0/0	1/4	1/4	1/4	1/4	4/16
14	0/0	0/0	2/8	1/4	1/4	4/16
15	3/12	2/8	1/4	3/12	3/12	12/48
16	2/8	3/12	3/12	3/12	3/12	14/56
17	2/8	2/8	2/8	2/8	3/12	11/44
18	0/0	1/3	1/4	2/8	2/8	5/20
19	1/4	1/4	1/4	2/8	1/4	6/24
20	1/4	1/4	2/8	2/8	2/8	8/32
21	2/8	1/4	2/8	3/12	2/8	10/36
22	0/0	1/4	0/0	2/8	1/4	4/16
23	3/12	2/8	2/8	2/8	2/8	11/44
24	1/4	1/4	1/4	1/4	1/4	5/20
25	3/12	1/4	3/12	3/12	3/12	13/52
26	3/12	3/12	2/8	3/12	3/12	14/56
27	1/4	3/12	3/12	3/12	2/8	12/48
28	1/4	1/4	2/8	3/12	1/4	8/32
SUBTOTAL	OBJECT CONTROL					250/984
TOTAL						654/2596
MEAN						23.36/92.71

PARENT POST-INTERVENTION PERCEPTIONS
MOTHERS' RAW SCORES/STANDARD SCORES

CHILD	RUN R/S	GALLOP R/S	HOP R/S	LEAP R/S	JUMP R/S	SKIP R/S	SLIDE R/S	TOTAL R/S
1	3/12	2/8	2/8	3/12	3/12	0/0	3/12	13/64
2	3/12	2/8	2/8	1/4	3/12	2/8	2/8	15/60
3	3/12	2/8	3/12	3/12	3/12	3/12	2/8	19/76
4	2/8	1/4	1/4	0/0	1/4	0/0	1/4	6/24
5	3/12	2/8	3/12	2/8	3/12	2/8	2/8	17/68
6	2/8	3/12	2/8	2/8	2/8	2/8	2/8	15/60
7	3/12	2/8	2/8	3/12	2/8	2/8	2/8	16/64
8	3/12	0/0	1/4	2/8	1/4	0/0	1/4	8/32
9	3/12	1/4	2/8	3/12	2/8	1/4	2/8	14/56
10	2/8	1/4	1/4	2/8	3/12	1/4	0/0	10/40
11	2/8	3/12	1/4	1/4	1/4	0/0	1/4	9/36
12	3/12	3/12	3/12	3/12	3/12	3/12	2/8	20/80
13	3/12	3/12	3/12	2/8	3/12	2/8	3/12	19/76
14	3/12	1/4	1/4	1/4	3/12	0/0	3/12	12/48
15	2/8	0/0	2/8	0/0	2/8	0/0	2/8	8/32
16	3/12	2/8	2/8	2/8	2/8	0/0	2/8	13/52
17	3/12	2/8	3/12	3/12	3/12	3/12	3/12	20/80
18	3/12	2/8	3/12	1/4	2/8	0/0	2/8	13/48
19	2/8	2/8	3/12	1/4	2/8	2/8	2/8	14/56
20	2/8	1/4	1/4	2/8	2/8	0/0	2/8	10/40
21	3/12	1/4	1/4	2/8	2/8	1/4	2/8	12/48
22	2/8	1/4	1/4	1/4	1/4	0/0	0/0	6/24
23	2/8	3/12	2/8	3/12	2/8	1/4	3/12	16/64
24	2/8	2/8	1/4	2/8	3/12	2/8	2/8	14/56
25	3/12	1/4	2/8	2/8	3/12	0/0	2/8	13/52
26	3/12	2/8	3/12	2/8	2/8	1/4	2/8	15/60
27	3/12	2/8	3/12	2/8	2/8	2/8	2/8	16/64
28	2/8	1/4	2/8	1/4	1/4	1/4	3/12	11/44
SUBTOTAL	LOCOMOTOR SKILLS							364/1504

CHILD	STRIKE R/S	BOUNCE R/S	CATCH R/S	KICK R/S	THROW R/S	TOTAL R/S
1	3/12	2/8	2/8	2/8	2/8	11/44
2	2/8	1/4	2/8	2/8	1/4	8/32
3	1/4	3/12	2/8	3/12	3/12	12/48
4	0/0	0/0	0/0	1/4	1/4	2/ 8
5	1/4	2/8	2/8	2/8	2/8	9/32
6	1/4	2/8	2/8	2/8	2/8	9/36
7	1/4	1/4	1/4	1/4	1/4	5/20
8	2/8	0/0	1/4	2/8	2/8	7/28
9	2/8	1/4	2/8	3/12	3/12	11/44
10	0/0	0/0	1/4	2/8	2/8	5/20
11	1/4	0/0	1/4	1/4	1/4	4/16
12	2/8	2/8	2/8	3/12	2/8	11/44
13	1/4	1/4	2/8	1/4	1/4	6/24
14	1/4	1/4	2/8	1/4	2/8	7/28
15	2/8	1/4	3/12	2/8	1/4	9/36
16	2/8	2/8	2/8	2/8	2/8	10/40
17	2/8	2/8	2/8	2/8	2/8	10/40
18	2/8	0/0	3/12	2/8	2/8	9/36
19	2/8	2/8	3/12	3/12	1/4	11/44
20	1/4	1/4	1/4	2/8	1/4	6/24
21	1/4	1/4	1/4	2/8	1/4	6/24
22	0/0	0/0	0/0	1/4	0/0	1/ 8
23	3/12	2/8	2/8	3/12	2/8	12/48
24	2/8	2/8	2/8	2/8	2/8	10/40
25	2/8	1/4	2/8	2/8	2/8	9/36
26	3/12	2/8	3/12	2/8	2/8	12/48
27	1/4	1/4	2/8	3/12	2/8	9/36
28	2/8	2/8	2/8	2/8	1/4	9/36
SUBTOTAL	OBJECT CONTROL					228/900
TOTAL						592/2404
MEAN						21.14/85.86

PARENT PRE-INTERVENTION PERCEPTIONS
FATHERS' RAW SCORES/STANDARD SCORES

CHILD	RUN R/S	GALLOP R/S	HOP R/S	LEAP R/S	JUMP R/S	SKIP R/S	SLIDE R/S	TOTAL R/S
1	2/8	1/4	3/12	2/8	1/4	1/4	1/4	11/44
2	3/12	2/8	2/8	2/8	3/12	2/8	2/8	16/64
3	3/12	3/12	2/8	3/12	3/12	3/12	3/12	20/80
4	2/8	2/8	2/8	1/4	1/4	1/4	1/4	10/44
5	2/8	3/12	3/12	2/8	2/8	2/8	1/4	15/60
6	2/8	2/8	2/8	2/8	2/8	2/ 8	2/8	14/56
7	3/12	1/4	3/12	1/4	2/8	0/0	1/4	11/44
8	3/12	2/8	3/12	3/12	2/8	1/4	1/4	15/60
9	3/12	2/8	2/8	3/12	2/8	2/8	2/8	16/64
10	2/8	3/12	2/8	3/12	3/12	3/12	2/8	18/72
11	2/8	1/4	1/4	0/0	1/4	0/0	0/0	5/24
12	2/8	1/4	2/8	2/8	2/8	1/4	1/4	11/44
13	3/12	2/8	2/8	1/4	3/12	1/4	3/12	15/60
14	3/12	2/8	2/8	2/8	2/8	1/4	1/4	13/62
15	3/12	2/8	2/8	2/8	2/8	2/8	3/12	16/60
16	2/8	3/12	2/8	2/8	2/8	1/4	3/12	15/56
17	3/12	3/12	3/12	2/8	2/8	3/12	2/8	18/64
18	3/12	2/8	3/12	2/8	3/12	1/4	2/8	16/64
19	3/12	2/8	1/4	1/4	0/0	0/0	3/12	10/40
20	1/4	0/0	2/8	1/4	3/12	1/4	3/12	11/48
21	3/12	1/4	2/8	1/4	2/8	1/4	1/4	11/44
22	2/8	1/4	1/4	2/8	2/8	2/8	3/8	12/48
23	2/8	2/8	2/8	1/4	2/8	1/4	3/8	12/48
24	3/12	2/8	2/8	2/8	2/8	2/8	3/8	15/60
25	3/12	3/12	3/12	3/12	3/12	0/0	3/12	18/72
26	3/12	1/4	3/12	1/4	3/12	2/8	3/8	15/60
27	3/12	2/8	3/12	1/4	3/12	2/8	3/8	16/64
28	3/12	1/4	2/8	3/12	3/12	1/4	3/12	16/64
SUBTOTAL	LOCOMOTOR SKILLS							391/1570

CHILD	STRIKE R/S	BOUNCE R/S	CATCH R/S	KICK R/S	THROW R/S	TOTAL R/S
1	1/4	1/4	2/8	3/12	2/8	9/36
2	3/12	2/8	3/12	3/12	3/12	14/52
3	2/8	3/12	2/8	3/12	3/12	13/52
4	1/4	0/0	1/4	2/8	1/4	5/20
5	2/8	2/8	3/12	1/4	3/12	11/40
6	3/8	2/8	2/8	2/8	2/8	10/40
7	1/4	2/8	1/4	2/8	1/4	7/32
8	2/8	2/8	1/4	3/12	3/12	11/44
9	3/12	2/8	3/12	3/12	3/12	14/52
10	1/4	2/8	1/4	2/8	2/8	8/32
11	1/4	0/0	1/4	2/8	2/8	6/24
12	1/4	1/4	214	2/4	0/0	4/16
13	3/12	2/8	2/8	2/8	1/4	10/40
14	0/0	1/4	1/4	1/4	1/4	4/16
15	3/12	1/4	2/8	3/12	2/8	11/44
16	2/8	2/8	2/8	3/12	3/12	12/40
17	2/8	2/8	1/4	2/8	3/12	10/40
18	0/0	1/4	2/8	2/8	2/8	7/28
19	1/4	0/0	1/4	2/8	1/4	5/12
20	1/4	2/8	2/8	3/12	1/4	9/36
21	3/12	2/8	2/8	3/12	2/8	12/48
22	1/4	1/4	2/8	2/8	2/8	8/32
23	3/12	2/8	1/4	2/8	1/4	9/36
24	2/8	2/8	2/8	2/8	2/8	10/40
25	3/12	2/8	2/8	3/12	3/12	13/50
26	1/4	3/12	2/8	2/8	2/8	10/40
27	3/12	3/12	1/4	3/12	1/4	11/44
28	1/4	0/0	2/8	3/12	3/12	9/36
SUBTOTAL	OBJECT CONTROL					262/1022
TOTAL						653/2592
MEAN						23.32/92.57

PARENT POST-INTERVENTION PERCEPTIONS
FATHERS' RAW SCORES/STANDARD SCORES

CHILD	RUN R/S	GALLOP R/S	HOP R/S	LEAP R/S	JUMP R/S	SKIP R/S	SLIDE R/S	TOTAL R/S
1	3/12	2/8	3/12	2/8	2/8	2/8	2/8	16/64
2	3/12	2/8	2/8	3/12	3/12	2/8	2/8	17/68
3	3/12	3/12	3/12	3/12	3/12	3/12	2/8	20/80
4	1/4	2/8	1/4	2/8	2/8	0/0	1/4	9/36
5	3/12	2/8	2/8	2/8	3/12	2/8	3/12	17/68
6	2/8	2/8	2/8	2/8	1/4	2/8	1/4	12/48
7	3/12	1/4	2/8	2/8	3/12	2/8	1/4	14/56
8	2/8	1/4	1/4	2/8	2/8	0/0	1/4	9/36
9	2/8	2/8	2/8	2/8	3/9	1/4	1/4	13/48
10	2/8	2/8	2/8	2/8	3/12	2/8	3/12	16/64
11	1/4	1/4	2/8	2/8	2/8	0/0	1/4	9/36
12	2/8	2/8	3/12	2/8	3/12	3/12	1/4	16/64
13	3/12	2/8	3/12	2/8	2/8	1/4	3/12	14/64
14	3/12	1/4	2/8	1/4	2/8	1/4	1/4	11/44
15	2/8	1/4	3/12	1/4	2/8	2/8	1/4	12/48
16	2/8	1/4	2/8	1/4	3/12	1/4	1/4	11/44
17	3/12	2/8	3/12	2/8	3/12	3/12	2/8	18/72
18	3/12	2/8	2/8	3/12	2/8	1/4	2/8	15/60
19	3/12	2/8	2/8	2/8	2/8	2/8	2/8	15/60
20	2/8	0/0	1/4	1/4	2/8	0/0	1/4	7/28
21	3/12	2/8	3/12	3/12	3/12	3/12	2/8	19/76
22	2/8	1/4	1/4	1/4	1/4	1/4	1/4	8/32
23	3/12	3/12	2/8	2/8	2/8	1/4	2/8	15/60
24	2/8	2/8	2/8	2/8	2/8	2/8	2/8	14/56
25	3/12	2/8	3/12	3/12	3/12	3/12	2/8	17/76
26	3/12	2/8	3/12	2/8	3/12	1/4	1/4	15/60
27	3/12	2/8	1/4	3/12	3/12	1/4	1/4	14/56
28	2/8	1/4	1/4	3/12	2/8	1/4	2/8	12/48
SUBTOTAL	LOCOMOTOR SKILLS							385/1607

CHILD	STRIKE R/S	BOUNCE R/S	CATCH R/S	KICK R/S	THROW R/S	TOTAL R/S
1	2/8	1/4	2/8	3/12	2/8	7/40
2	2/8	1/4	3/12	2/8	3/12	11/44
3	2/8	312	2/8	3/12	3/12	13/52
4	1/4	1/4	1/4	1/4	1/4	5/20
5	1/4	2/8	3/12	2/8	1/4	9/36
6	1/4	1/4	2/8	2/8	1/4	7/32
7	2/8	2/8	2/8	2/8	2/8	10/40
8	2/8	2/8	2/8	3/12	3/12	12/48
9	3/12	3/12	2/8	3/12	312	14/54
10	1/4	2/8	1/4	2/8	2/8	8/32
11	1/4	0/0	1/4	1/4	1/4	4/16
12	2/8	2/8	2/8	2/8	1/4	9/36
13	1/4	1/4	1/4	1/4	1/4	5/20
14	0/0	1/4	1/4	1/4	2/8	5/20
15	3/12	2/8	2/8	2/8	1/4	10/40
16	2/8	1/4	1/4	1/4	2/8	6/28
17	3/12	2/8	1/4	2/8	2/8	10/40
18	1/4	1/4	1/4	1/4	1/4	5/20
19	1/4	2/8	1/4	2/8	2/8	7/32
20	1/4	1/4	1/4	3/4	1/4	7/20
21	3/12	2/8	3/12	3/12	3/12	14/54
22	1/4	0/0	1/4	2/8	1/4	5/20
23	3/12	3/12	3/12	3/12	3/12	15/60
24	3/12	2/8	2/8	2/8	2/8	11/44
25	3/12	1/4	2/8	3/12	3/12	12/48
26	2/8	2/8	2/8	3/12	2/8	11/44
27	1/4	0/0	1/4	3/12	3/12	8/32
28	2/8	1/4	3/12	2/8	1/4	9/36
SUBTOTAL	OBJECT CONTROL					244/959
TOTAL						629/2566
MEAN						22.46/91.64